SEQUENCE LISTING

<110> Mack, David H.
      Gish, Kurt C.
      Afar, Daniel
      Eos Biotechnology, Inc.

<120> Methods of Diagnosis of Breast Cancer, Compositions and
      Methods of Screening for Modulators of Breast Cancer

<130> 018501-005210US

<140> US 10/058,270
<141> 2002-01-24

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<151> 2001-02-02

<150> US 09/829,472
<151> 2001-04-09

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Glu Phe Glu Val Tyr His Lys Leu Met Glu Lys Tyr Pro Cys Ala Val
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Pro Leu Trp Val Gly Pro Phe Thr Met Phe Phe Ser Val His Asp Pro
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Asp Tyr Ala Lys Ile Leu Leu Lys Arg Gln Asp Pro Lys Ser Ala Val
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Ser His Lys Ile Leu Glu Ser Trp Val Gly Arg Gly Leu Val Thr Leu
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Asp Gly Ser Lys Trp Lys Lys His Arg Gln Ile Val Lys Pro Gly Phe
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Arg Met Met Leu Asn Lys Trp Glu Glu Arg Ile Ala Gln Asn Ser Arg
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Leu Glu Leu Phe Gln His Val Ser Leu Met Thr Leu Asp Ser Ile Met
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Lys Gln Asp Thr Thr Gln Lys Arg Arg Trp Asp Phe Leu Asp Ile Leu
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Glu His Arg Thr Pro Leu Met Lys Ala Leu Gln Cys His Gln Glu Ala
    50                  55                  60


Cys Ala Asn Ile Leu Ile Asp Ser Gly Ala Asp Ile Asn Leu Val Asp
 65                  70                  75                  80


Val Tyr Gly Asn Met Ala Leu His Tyr Ala Val Tyr Ser Glu Ile Leu
                85                  90                  95


Ser Val Val Ala Lys Leu Leu Ser His Gly Ala Val Ile Glu Val His
            100                 105                 110


Asn Lys Ala Ser Leu Thr Pro Leu Leu Leu Ser Ile Thr Lys Arg Ser
            115                 120                 125


Glu Gln Ile Val Glu Phe Leu Leu Ile Lys Asn Ala Asn Ala Asn Ala
            130                 135                 140


Val Asn Lys Tyr Lys Cys Thr Ala Leu Met Leu Ala Val Cys His Gly
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Ser Ser Glu Ile Val Gly Met Leu Leu Gln Gln Asn Val Asp Val Phe
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5

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Pro Asp Glu Ala Ala Pro Leu Ala Glu Arg Thr Pro Asp Thr Ala Glu
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Thr Pro Asp Thr Ala Glu Ser Leu Val Glu Lys Thr Pro Asp Glu Ala
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Ile Thr Ser Pro Ala Lys Glu Thr Ser Glu Lys Phe Thr Trp Pro Ala
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Lys Gly Arg Pro Arg Lys Ile Ala Trp Glu Lys Lys Glu Asp Thr Pro
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Arg Glu Ile Met Ser Pro Ala Lys Glu Thr Ser Glu Lys Phe Thr Trp
            340                 345                 350

Ala Ala Lys Gly Arg Pro Arg Lys Ile Ala Trp Glu Lys Lys Glu Thr
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Pro Val Lys Thr Gly Cys Val Ala Arg Val Thr Ser Asn Lys Thr Lys
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Val Leu Glu Lys Gly Arg Ser Lys Met Ile Ala Cys Pro Thr Lys Glu
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Ser Ile Pro Thr Lys Ala Leu Glu Leu Lys Asp Met Gln Thr Phe Lys
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Ala Glu Pro Pro Gly Lys Pro Ser Ala Phe Glu Pro Ala Thr Glu Met
            580                 585                 590

Gln Lys Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr
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Trp Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr
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Lys Asp Val Cys Leu Pro Lys Ala Ala His Gln Lys Glu Ile Asp Lys
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Ile Asn Gly Lys Leu Glu Gly Ser Pro Val Lys Asp Gly Leu Leu Lys
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Ala Asn Cys Gly Met Lys Val Ser Ile Pro Thr Lys Ala Leu Glu Leu
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Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro Ser
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Glu Ser Lys Gln Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser
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Leu Cys Glu Thr Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Thr
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His Gln Lys Glu Ile Asp Lys Ile Asn Gly Lys Leu Glu Glu Ser Pro
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Asp Asn Asp Gly Phe Leu Lys Ala Pro Cys Arg Met Lys Val Ser Ile
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Pro Thr Lys Ala Leu Glu Leu Met Asp Met Gln Thr Phe Lys Ala Glu
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7

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Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg
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Ala Asp Gln Met Phe Pro Ser Glu Ser Lys Gln Lys Lys Val Glu Glu
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Val Cys Val Pro Lys Ala Thr His Gln Lys Glu Met Asp Lys Ile Ser
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Gly Lys Leu Glu Asp Ser Thr Ser Leu Ser Lys Ile Leu Asp Thr Val
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His Ser Cys Glu Arg Ala Arg Glu Leu Gln Lys Asp His Cys Glu Gln
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Arg Thr Gly Lys Met Glu Gln Met Lys Lys Lys Phe Cys Val Leu Lys
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Lys Lys Leu Ser Glu Ala Lys Glu Ile Lys Ser Gln Leu Glu Asn Gln
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Lys Val Lys Trp Glu Gln Glu Leu Cys Ser Val Arg Leu Thr Leu Asn
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Val Lys Gln Gln Leu Glu Gln Ala Leu Arg Ile Gln Asp Ile Glu Leu
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Lys Ser Val Glu Ser Asn Leu Asn Gln Val Ser His Thr His Glu Asn
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Glu Asn Tyr Leu Leu His Glu Asn Cys Met Leu Lys Lys Glu Ile Ala
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Met Leu Lys Leu Glu Ile Ala Thr Leu Lys His Gln Tyr Gln Glu Lys
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Ala Ser Gln Tyr Ser Gly Gln Leu Lys Val Leu Ile Ala Glu Asn Thr
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Met Leu Thr Ser Lys Leu Lys Glu Lys Gln Asp Lys Glu Ile Leu Glu
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8

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Gln Arg Lys Ser Lys Ser Leu Lys Ile Asn Leu Asn Tyr Ala Gly Asp
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Leu Val His Ala His Lys Lys Ala Asp Asn Lys Ser Lys Ile Thr Ile
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Asp Ile His Phe Leu Glu Arg Lys Met Gln His His Leu Leu Lys Glu
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9

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<212> PRT
<213> Homo sapiens

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                20                  25                  30

Lys Cys His His His Cys Pro Glu Asp Ser Val Asn Asn Ile Cys Ser
             35                  40                  45

Thr Asp Gly Tyr Cys Phe Thr Met Ile Glu Glu Asp Asp Ser Gly Leu
         50                  55                  60

Pro Val Val Thr Ser Gly Cys Leu Gly Leu Glu Gly Ser Asp Phe Gln
 65                  70                  75                  80

Cys Arg Asp Thr Pro Ile Pro His Gln Arg Arg Ser Ile Glu Cys Cys
                 85                  90                  95

Thr Glu Arg Asn Glu Cys Asn Lys Asp Leu His Pro Thr Leu Pro Pro
                100                 105                 110

Leu Lys Asn Arg Asp Phe Val Asp Gly Pro Ile His His Arg Ala Leu
             115                 120                 125

Leu Ile Ser Val Thr Val Cys Ser Leu Leu Leu Val Leu Ile Ile Leu
         130                 135                 140

Phe Cys Tyr Phe Arg Tyr Lys Arg Gln Glu Thr Arg Pro Arg Tyr Ser
145                 150                 155                 160

Ile Gly Leu Glu Gln Asp Glu Thr Tyr Ile Pro Pro Gly Glu Ser Leu
                165                 170                 175
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Arg Asp Leu Ile Glu Gln Ser Gln Ser Ser Gly Ser Gly Ser Gly Leu
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Pro Leu Leu Val Gln Arg Thr Ile Ala Lys Gln Ile Gln Met Val Lys
            195   200   205

Gln Ile Gly Lys Gly Arg Tyr Gly Glu Val Trp Met Gly Lys Trp Arg
        210   215   220

Gly Glu Lys Val Ala Val Lys Val Phe Phe Thr Thr Glu Glu Ala Ser
225   230   235   240

Trp Phe Arg Glu Thr Glu Ile Tyr Gln Thr Val Leu Met Arg His Glu
                245   250   255

Asn Ile Leu Gly Phe Ile Ala Ala Asp Ile Lys Gly Thr Gly Ser Trp
            260   265   270

Thr Gln Leu Tyr Leu Ile Thr Asp Tyr His Glu Asn Gly Ser Leu Tyr
        275   280   285

Asp Tyr Leu Lys Ser Thr Thr Leu Asp Ala Lys Ser Met Leu Lys Leu
    290   295   300

Ala Tyr Ser Ser Val Ser Gly Leu Cys His Leu His Thr Glu Ile Phe
305   310   315   320

Ser Thr Gln Gly Lys Pro Ala Ile Ala His Arg Asp Leu Lys Ser Lys
            325   330   335

Asn Ile Leu Val Lys Lys Asn Gly Thr Cys Cys Ile Ala Asp Leu Gly
            340   345   350

Leu Ala Val Lys Phe Ile Ser Asp Thr Asn Glu Val Asp Ile Pro Pro
        355   360   365

Asn Thr Arg Val Gly Thr Lys Arg Tyr Met Pro Pro Glu Val Leu Asp
    370   375   380

Glu Ser Leu Asn Arg Asn His Phe Gln Ser Tyr Ile Met Ala Asp Met
385   390   395   400

Tyr Ser Phe Gly Leu Ile Leu Trp Glu Val Ala Arg Arg Cys Val Ser
            405   410   415

Gly Gly Ile Val Glu Glu Tyr Gln Leu Pro Tyr His Asp Leu Val Pro
        420   425   430

Ser Asp Pro Ser Tyr Glu Asp Met Arg Glu Ile Val Cys Ile Lys Lys
        435   440   445

Leu Arg Pro Ser Phe Pro Asn Arg Trp Ser Ser Asp Glu Cys Leu Arg
    450   455   460

Gln Met Gly Lys Leu Met Thr Glu Cys Trp Ala His Asn Pro Ala Ser
465   470   475   480

Arg Leu Thr Ala Leu Arg Val Lys Lys Thr Leu Ala Lys Met Ser Glu
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11

Ser Gln Asp Ile Lys Leu
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<211> 3238
<212> DNA
<213> Homo sapiens

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12

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<210> 8
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<212> PRT
<213> Homo sapiens

<400> 8

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Ser Leu His Ser Gln Thr Pro Val Leu Ser Ser Arg Gly Ser Cys Asp
            20                  25                  30

Ser Leu Cys Asn Cys Glu Glu Lys Asp Gly Thr Met Leu Ile Asn Cys
        35                  40                  45

Glu Ala Lys Gly Ile Lys Met Val Ser Glu Ile Ser Val Pro Pro Ser
    50                  55                  60

Arg Pro Phe Gln Leu Ser Leu Leu Asn Asn Gly Leu Thr Met Leu His
 65                  70                  75                  80

Thr Asn Asp Phe Ser Gly Leu Thr Asn Ala Ile Ser Ile His Leu Gly
                85                  90                  95

Phe Asn Asn Ile Ala Asp Ile Glu Ile Gly Ala Phe Asn Gly Leu Gly
            100                 105                 110

Leu Leu Lys Gln Leu His Ile Asn His Asn Ser Leu Glu Ile Leu Lys
        115                 120                 125

Glu Asp Thr Phe His Gly Leu Glu Asn Leu Glu Phe Leu Gln Ala Asp
    130                 135                 140

Asn Asn Phe Ile Thr Val Ile Glu Pro Ser Ala Phe Ser Lys Leu Asn
145                 150                 155                 160

Arg Leu Lys Val Leu Ile Leu Asn Asp Asn Ala Ile Glu Ser Leu Pro
                165                 170                 175

Pro Asn Ile Phe Arg Phe Val Pro Leu Thr His Leu Asp Leu Arg Gly
            180                 185                 190

Asn Gln Leu Gln Thr Leu Pro Tyr Val Gly Phe Leu Glu His Ile Gly
        195                 200                 205

Arg Ile Leu Asp Leu Gln Leu Glu Asp Asn Lys Trp Ala Cys Asn Cys
    210                 215                 220

Asp Leu Leu Gln Leu Lys Thr Trp Leu Glu Asn Met Pro Pro Gln Ser
225                 230                 235                 240

Ile Ile Gly Asp Val Val Cys Asn Ser Pro Pro Phe Phe Lys Gly Ser
            245                 250                 255

Ile Leu Ser Arg Leu Lys Lys Glu Ser Ile Cys Pro Thr Pro Pro Val
        260                 265                 270
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13

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Tyr Glu Glu His Glu Asp Pro Ser Gly Ser Leu His Leu Ala Ala Thr
    275                 280             285

Ser Ser Ile Asn Asp Ser Arg Met Ser Thr Lys Thr Thr Ser Ile Leu
    290                 295             300

Lys Leu Pro Thr Lys Ala Pro Gly Leu Ile Pro Tyr Ile Thr Lys Pro
305                 310             315                 320

Ser Thr Gln Leu Pro Gly Pro Tyr Cys Pro Ile Pro Cys Asn Cys Lys
            325             330             335

Val Leu Ser Pro Ser Gly Leu Leu Ile His Cys Gln Glu Arg Asn Ile
            340             345             350

Glu Ser Leu Ser Asp Leu Arg Pro Pro Gln Asn Pro Arg Lys Leu
        355             360             365

Ile Leu Ala Gly Asn Ile Ile His Ser Leu Met Lys Ser Asp Leu Val
    370             375             380

Glu Tyr Phe Thr Leu Glu Met Leu His Leu Gly Asn Asn Arg Ile Glu
385             390             395                 400

Val Leu Glu Glu Gly Ser Phe Met Asn Leu Thr Arg Leu Gln Lys Leu
            405             410                 415

Tyr Leu Asn Gly Asn His Leu Thr Lys Leu Ser Lys Gly Met Phe Leu
            420             425             430

Gly Leu His Asn Leu Glu Tyr Leu Tyr Leu Glu Tyr Asn Ala Ile Lys
            435             440             445

Glu Ile Leu Pro Gly Thr Phe Asn Pro Met Pro Lys Leu Lys Val Leu
    450             455             460

Tyr Leu Asn Asn Asn Leu Leu Gln Val Leu Pro Pro His Ile Phe Ser
465                 470             475                 480

Gly Val Pro Leu Thr Lys Val Asn Leu Lys Thr Asn Gln Phe Thr His
            485             490             495

Leu Pro Val Ser Asn Ile Leu Asp Asp Leu Asp Leu Leu Thr Gln Ile
            500             505             510

Asp Leu Glu Asp Asn Pro Trp Asp Cys Ser Cys Asp Leu Val Gly Leu
        515             520             525

Gln Gln Trp Ile Gln Lys Leu Ser Lys Asn Thr Val Thr Asp Asp Ile
    530             535             540

Leu Cys Thr Ser Pro Gly His Leu Asp Lys Lys Glu Leu Lys Ala Leu
545             550             555                 560

Asn Ser Glu Ile Leu Cys Pro Gly Leu Val Asn Asn Pro Ser Met Pro
            565             570             575

Thr Gln Thr Ser Tyr Leu Met Val Thr Thr Pro Ala Thr Thr Thr Asn
        580             585             590
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14

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Thr Ala Asp Thr Ile Leu Arg Ser Leu Thr Asp Ala Val Pro Leu Ser
        595                 600             605
Val Leu Ile Leu Gly Leu Leu Ile Met Phe Ile Thr Ile Val Phe Cys
        610                 615             620
Ala Ala Gly Ile Val Val Leu Val Leu His Arg Arg Arg Tyr Lys
625                 630                 635             640
Lys Lys Gln Val Asp Glu Gln Met Arg Asp Asn Ser Pro Val His Leu
                645                 650             655
Gln Tyr Ser Met Tyr Gly His Lys Thr Thr His His Thr Thr Glu Arg
            660                 665             670
Pro Ser Ala Ser Leu Tyr Glu Gln His Met Val Ser Pro Met Val His
            675                 680             685
Val Tyr Arg Ser Pro Ser Phe Gly Pro Lys His Leu Glu Glu Glu Glu
        690                 695         ·       700
Glu Arg Asn Glu Lys Glu Gly Ser Asp Ala Lys His Leu Gln Arg Ser
705                 710                 715             720
Leu Leu Glu Gln Glu Asn His Ser Pro Leu Thr Gly Ser Asn Met Lys
                725                 730             735
Tyr Lys Thr Thr Asn Gln Ser Thr Glu Phe Leu Ser Phe Gln Asp Ala
        ·740                 745             750
Ser Ser Leu Tyr Arg Asn Ile Leu Glu Lys Glu Arg Glu Leu Gln Gln
        755                 760             765
Leu Gly Ile Thr Glu Tyr Leu Arg Lys Asn Ile Ala Gln Leu Gln Pro
        770                 775             780
Asp Met Glu Ala His Tyr Pro Gly Ala His Glu Glu Leu Lys Leu Met
785                 790                 795             800
Glu Thr Leu Met Tyr Ser Arg Pro Arg Lys Val Leu Val Glu Gln Thr
                805                 810             815
Lys Asn Glu Tyr Phe Glu Leu Lys Ala Asn Leu His Ala Glu Pro Asp
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Tyr Leu Glu Val Leu Glu Gln Gln Thr
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<212> DNA
<213> Homo sapiens

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16

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<210> 10
<211> 909
<212> PRT
<213> Homo sapiens

<400> 10

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  1               5                  10                  15

Ala Leu Ala Gly Ala Leu Leu Ala Pro Cys Glu Ala Arg Gly Val Ser
               20                  25                  30

Leu Trp Asn Glu Gly Arg Ala Asp Glu Val Val Ser Ala Ser Val Arg
           35                  40                  45

Ser Gly Asp Leu Trp Ile Pro Val Lys Ser Phe Asp Ser Lys Asn His
       50                  55                  60

Pro Glu Val Leu Asn Ile Arg Leu Gln Arg Glu Ser Lys Glu Leu Ile
 65                  70                  75                  80

Ile Asn Leu Glu Arg Asn Glu Gly Leu Ile Ala Ser Ser Phe Thr Glu
               85                  90                  95

Thr His Tyr Leu Gln Asp Gly Thr Asp Val Ser Leu Ala Arg Asn Tyr
           100                 105                 110

Thr Val Ile Leu Gly His Cys Tyr Tyr His Gly His Val Arg Gly Tyr
           115                 120                 125

Ser Asp Ser Ala Val Ser Leu Ser Thr Cys Ser Gly Leu Arg Gly Leu
       130                 135                 140

Ile Val Phe Glu Asn Glu Ser Tyr Val Leu Glu Pro Met Lys Ser Ala
145                 150                 155                 160

Thr Asn Arg Tyr Lys Leu Phe Pro Ala Lys Lys Leu Lys Ser Val Arg
               165                 170                 175

Gly Ser Cys Gly Ser His His Asn Thr Pro Asn Leu Ala Ala Lys Asn
               180                 185                 190
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17

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Val Phe Pro Pro Pro Ser Gln Thr Trp Ala Arg Arg His Lys Arg Glu
        195             200             205

Thr Leu Lys Ala Thr Lys Tyr Val Glu Leu Val Ile Val Ala Asp Asn
    210             215             220

Arg Glu Phe Gln Arg Gln Gly Lys Asp Leu Glu Lys Val Lys Gln Arg
225             230             235             240

Leu Ile Glu Ile Ala Asn His Val Asp Lys Phe Tyr Arg Pro Leu Asn
                245             250             255

Ile Arg Ile Val Leu Val Gly Val Glu Val Trp Asn Asp Met Asp Lys
            260             265             270

Cys Ser Val Ser Gln Asp Pro Phe Thr Ser Leu His Glu Phe Leu Asp
        275             280             285

Trp Arg Lys Met Lys Leu Leu Pro Arg Lys Ser His Asp Asn Ala Gln
    290             295             300

Leu Val Ser Gly Val Tyr Phe Gln Gly Thr Thr Ile Gly Met Ala Pro
305             310             315             320

Ile Met Ser Met Cys Thr Ala Asp Gln Ser Gly Gly Ile Val Met Asp
                325             330             335

His Ser Asp Asn Pro Leu Gly Ala Ala Val Thr Leu Ala His Glu Leu
            340             345             350

Gly His Asn Phe Gly Met Asn His Asp Thr Leu Asp Arg Gly Cys Ser
    355             360             365

Cys Gln Met Ala Val Glu Lys Gly Gly Cys Ile Met Asn Ala Ser Thr
    370             375             380

Gly Tyr Pro Phe Pro Met Val Phe Ser Ser Cys Ser Arg Lys Asp Leu
385             390             395             400

Glu Thr Ser Leu Glu Lys Gly Met Gly Val Cys Leu Phe Asn Leu Pro
            405             410             415

Glu Val Arg Glu Ser Phe Gly Gly Gln Lys Cys Gly Asn Arg Phe Val
            420             425             430

Glu Glu Gly Glu Glu Cys Asp Cys Gly Glu Pro Glu Glu Cys Met Asn
    435             440             445

Arg Cys Cys Asn Ala Thr Thr Cys Thr Leu Lys Pro Asp Ala Val Cys
    450             455             460

Ala His Gly Leu Cys Cys Glu Asp Cys Gln Leu Lys Pro Ala Gly Thr
465             470             475             480

Ala Cys Arg Asp Ser Ser Asn Ser Cys Asp Leu Pro Glu Phe Cys Thr
            485             490             495

Gly Ala Ser Pro His Cys Pro Ala Asn Val Tyr Leu His Asp Gly His
            500             505             510
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18

Ser Cys Gln Asp Val Asp Gly Tyr Cys Tyr Asn Gly Ile Cys Gln Thr
        515   520   525

His Glu Gln Gln Cys Val Thr Leu Trp Gly Pro Gly Ala Lys Pro Ala
        530   535   540

Pro Gly Ile Cys Phe Glu Arg Val Asn Ser Ala Gly Asp Pro Tyr Gly
545   550   555   560

Asn Cys Gly Lys Val Ser Lys Ser Ser Phe Ala Lys Cys Glu Met Arg
                565   570   575

Asp Ala Lys Cys Gly Lys Ile Gln Cys Gln Gly Gly Ala Ser Arg Pro
            580   585   590

Val Ile Gly Thr Asn Ala Val Ser Ile Glu Thr Asn Ile Pro Leu Gln
        595   600   605

Gln Gly Gly Arg Ile Leu Cys Arg Gly Thr His Val Tyr Leu Gly Asp
    610   615   620

Asp Met Pro Asp Pro Gly Leu Val Leu Ala Gly Thr Lys Cys Ala Asp
625   630   635   640

Gly Lys Ile Cys Leu Asn Arg Gln Cys Gln Asn Ile Ser Val Phe Gly
                645   650   655

Val His Glu Cys Ala Met Gln Cys His Gly Arg Gly Val Cys Asn Asn
            660   665   670

Arg Lys Asn Cys His Cys Glu Ala His Trp Ala Pro Pro Phe Cys Asp
            675   680   685

Lys Phe Gly Phe Gly Gly Ser Thr Asp Ser Gly Pro Ile Arg Gln Ala
    690   695   700

Asp Asn Gln Gly Leu Thr Ile Gly Ile Leu Val Thr Ile Leu Cys Leu
705   710   715   720

Leu Ala Ala Gly Phe Val Val Tyr Leu Lys Arg Lys Thr Leu Ile Arg
            725   730   735

Leu Leu Phe Thr Asn Lys Lys Thr Thr Ile Glu Lys Leu Arg Cys Val
            740   745   750

Arg Pro Ser Arg Pro Pro Arg Gly Phe Gln Pro Cys Gln Ala His Leu
        755   760   765

Gly His Leu Gly Lys Gly Leu Met Arg Lys Pro Pro Asp Ser Tyr Pro
    770   775   780

Pro Lys Asp Asn Pro Arg Arg Leu Leu Gln Cys Gln Asn Val Asp Ile
785   790   795   800

Ser Arg Pro Leu Asn Gly Leu Asn Val Pro Gln Pro Gln Ser Thr Gln
                805   810   815

Arg Val Leu Pro Pro Leu His Arg Ala Pro Arg Ala Pro Ser Val Pro
            820   825   830

19

Ala Arg Pro Leu Pro Ala Lys Pro Ala Leu Arg Gln Ala Gln Gly Thr
        835   840   845

Cys Lys Pro Asn Pro Pro Gln Lys Pro Leu Pro Ala Asp Pro Leu Ala
    850   855   860

Arg Thr Thr Arg Leu Thr His Ala Leu Ala Arg Thr Pro Gly Gln Trp
865   870   875   880

Glu Thr Gly Leu Arg Leu Ala Pro Leu Arg Pro Ala Pro Gln Tyr Pro
            885   890   895

His Gln Val Pro Arg Ser Thr His Thr Ala Tyr Ile Lys
        900   905

<210> 11
<211> 2514
<212> DNA
<213> Homo sapiens

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20

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<210> 12
<211> 394
<212> PRT
<213> Homo sapiens

<400> 12

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Met Val Thr Met Glu Glu Leu Arg Glu Met Asp Cys Ser Val Leu Lys
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Arg Leu Met Asn Arg Asp Glu Asn Gly Gly Gly Ala Gly Gly Ser Gly
             20                  25                  30

Ser His Gly Thr Leu Gly Leu Pro Ser Gly Gly Lys Cys Leu Leu Leu
         35                  40                  45

Asp Cys Arg Pro Phe Leu Ala His Ser Ala Gly Tyr Ile Leu Gly Ser
     50                  55                  60

Val Asn Val Arg Cys Asn Thr Ile Val Arg Arg Ala Lys Gly Ser
 65                  70                  75                  80

Val Ser Leu Glu Gln Ile Leu Pro Ala Glu Glu Val Arg Ala Arg
             85                  90                  95

Leu Arg Ser Gly Leu Tyr Ser Ala Val Ile Val Tyr Asp Glu Arg Ser
            100                 105                 110

Pro Arg Ala Glu Ser Leu Arg Glu Asp Ser Thr Val Ser Leu Val Val
            115                 120                 125

Gln Ala Leu Arg Arg Asn Ala Glu Arg Thr Asp Ile Cys Leu Leu Lys
            130                 135                 140

Gly Gly Tyr Glu Arg Phe Ser Ser Glu Tyr Pro Glu Phe Cys Ser Lys
145                 150                 155                 160

Thr Lys Ala Leu Ala Ala Ile Pro Pro Pro Val Pro Pro Ser Ala Thr
            165                 170                 175

Glu Pro Leu Asp Leu Gly Cys Ser Ser Cys Gly Thr Pro Leu His Asp
            180                 185                 190

Gln Gly Gly Pro Val Glu Ile Leu Pro Phe Leu Tyr Leu Gly Ser Ala
            195                 200                 205

Tyr His Ala Ala Arg Arg Asp Met Leu Asp Ala Leu Gly Ile Thr Ala
            210                 215                 220

Leu Leu Asn Val Ser Ser Asp Cys Pro Asn His Phe Glu Gly His Tyr
225                 230                 235                 240

Gln Tyr Lys Cys Ile Pro Val Glu Asp Asn His Lys Ala Asp Ile Ser
                245                 250                 255

Ser Trp Phe Met Glu Ala Ile Glu Tyr Ile Asp Ala Val Lys Asp Cys
                260                 265                 270
```

21

```
Arg Gly Arg Val Leu Val His Cys Gln Ala Gly Ile Ser Arg Ser Ala
        275                 280             285

Thr Ile Cys Leu Ala Tyr Leu Met Met Lys Lys Arg Val Arg Leu Glu
        290                 295             300

Glu Ala Phe Glu Phe Val Lys Gln Arg Arg Ser Ile Ile Ser Pro Asn
305                 310                 315                 320

Phe Ser Phe Met Gly Gln Leu Leu Gln Phe Glu Ser Gln Val Leu Ala
                325                 330                 335

Thr Ser Cys Ala Ala Glu Ala Ala Ser Pro Ser Gly Pro Leu Arg Glu
            340                 345                 350

Arg Gly Lys Thr Pro Ala Thr Pro Thr Ser Gln Phe Val Phe Ser Phe
        355                 360                 365

Pro Val Ser Val Gly Val His Ser Ala Pro Ser Ser Leu Pro Tyr Leu
    370                 375                 380

His Ser Pro Ile Thr Thr Ser Pro Ser Cys
385                 390


<210> 13
<211> 492
<212> DNA
<213> Homo sapiens

<400> 13
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tgcccagaat ccgacaacag ctgctccagc tgacacgtat ccagctactg gtcctgctga 180
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<210> 14
<211> 90
<212> PRT
<213> Homo sapiens

<400> 14
Met Lys Phe Leu Ala Val Leu Val Leu Leu Gly Val Ser Ile Phe Leu
    1               5                   10                  15

Val Ser Ala Gln Asn Pro Thr Thr Ala Ala Pro Ala Asp Thr Tyr Pro
            20                  25                  30

Ala Thr Gly Pro Ala Asp Asp Glu Ala Pro Asp Ala Glu Thr Thr Ala
            35                  40                  45

Ala Ala Thr Thr Ala Thr Thr Ala Ala Pro Thr Thr Ala Thr Thr Ala
    50                  55                  60
```

22

Ala Ser Thr Thr Ala Arg Lys Asp Ile Pro Val Leu Pro Lys Trp Val
 65   70   75   80

Gly Asp Leu Pro Asn Gly Arg Val Cys Pro
                    85   90

<210> 15
<211> 1695
<212> DNA
<213> Homo sapiens

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<210> 16
<211> 439
<212> PRT
<213> Homo sapiens

<400> 16
Met Ala Ala Ala Arg Cys Trp Arg Pro Leu Leu Arg Gly Pro Arg Leu
 1   5   10   15

Ser Leu His Thr Ala Ala Asn Ala Ala Ala Thr Ala Thr Glu Thr Thr
                20   25   30

Ser Gln Asp Val Ala Ala Thr Pro Val Ala Arg Tyr Pro Pro Ile Val
            35   40   45

Ala Ser Met Thr Ala Asp Ser Lys Ala Ala Arg Leu Arg Arg Ile Glu
        50   55   60

23

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Arg Trp Gln Ala Thr Val His Ala Ala Glu Ser Val Asp Glu Lys Leu
65              70              75                          80

Arg Ile Leu Thr Lys Met Gln Phe Met Lys Tyr Met Val Tyr Pro Gln
                85              90                  95

Thr Phe Ala Leu Asn Ala Asp Arg Trp Tyr Gln Tyr Phe Thr Lys Thr
            100             105             110

Val Phe Leu Ser Gly Leu Pro Pro Pro Ala Glu Pro Glu Pro Glu
        115             120             125

Pro Glu Pro Glu Pro Glu Pro Ala Leu Asp Leu Ala Ala Leu Arg Ala
    130             135             140

Val Ala Cys Asp Cys Leu Leu Gln Glu His Phe Tyr Leu Arg Arg Arg
145             150             155             160

Arg Arg Val His Arg Tyr Glu Glu Ser Glu Val Ile Ser Leu Pro Phe
            165             170             175

Leu Asp Gln Leu Val Ser Thr Leu Val Gly Leu Leu Ser Pro His Asn
        180             185             190

Pro Ala Leu Ala Ala Ala Ala Leu Asp Tyr Arg Cys Pro Val His Phe
        195             200             205

Tyr Trp Val Arg Gly Glu Glu Ile Ile Pro Arg Gly His Arg Arg Gly
    210             215             220

Arg Ile Asp Asp Leu Arg Tyr Gln Ile Asp Asp Lys Pro Asn Asn Gln
225             230             235             240

Ile Arg Ile Ser Lys Gln Leu Ala Glu Phe Val Pro Leu Asp Tyr Ser
            245             250             255

Val Pro Ile Glu Ile Pro Thr Ile Lys Cys Lys Pro Asp Lys Leu Pro
            260             265             270

Leu Phe Lys Arg Gln Tyr Glu Asn His Ile Phe Val Gly Ser Lys Thr
        275             280             285

Ala Asp Pro Cys Cys Tyr Gly His Thr Gln Phe His Leu Leu Pro Asp
    290             295             300

Lys Leu Arg Arg Glu Arg Leu Leu Arg Gln Asn Cys Ala Asp Gln Ile
305             310             315             320

Glu Val Val Phe Arg Ala Asn Ala Ile Ala Ser Leu Phe Ala Trp Thr
            325             330             335

Gly Ala Gln Ala Met Tyr Gln Gly Phe Trp Ser Glu Ala Asp Val Thr
            340             345             350

Arg Pro Phe Val Ser Gln Ala Val Ile Thr Asp Gly Lys Tyr Phe Ser
        355             360             365

Phe Phe Cys Tyr Gln Leu Asn Thr Leu Ala Leu Thr Thr Gln Ala Asp
        370             375             380
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Gln Asn Asn Pro Arg Lys Asn Ile Cys Trp Gly Thr Gln Ser Lys Pro
385   .   390   395   400

Leu Tyr Glu Thr Ile Glu Asp Asn Asp Val Lys Gly Phe Asn Asp Asp
                405   410   415

Val Leu Leu Gln Ile Val His Phe Leu Leu Asn Arg Pro Lys Glu Glu
            420   425   430

Lys Ser Gln Leu Leu Glu Asn
        435

<210> 17
<211> 4151
<212> DNA
<213> Homo sapiens

<400> 17
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<210> 18
<211> 715
<212> PRT
<213> Homo sapiens

<400> 18
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             20                  25                  30

Glu Gln Leu Asn His Tyr Arg Asn Val Ala Gln Asn Ala Arg Ser Glu
         35                  40                  45

Leu Ala Ala Thr Leu Val Lys Phe Glu Cys Ala Gln Ser Glu Leu Gln
     50                  55                  60

Asp Leu Arg Ser Lys Met Leu Ser Lys Glu Val Ser Cys Gln Glu Leu
65                  70                  75                  80

Lys Ala Glu Met Glu Ser Tyr Lys Glu Asn Asn Ala Arg Lys Ser Ser
                 85                  90                  95

Leu Leu Thr Ser Leu Arg Asp Arg Val Gln Glu Leu Glu Glu Glu Ser
             100                 105                 110

Ala Ala Leu Ser Thr Ser Lys Ile Arg Thr Glu Ile Thr Ala His Ala
         115                 120                 125
```

26

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Ala Ile Lys Glu Asn Gln Glu Leu Lys Lys Lys Val Val Glu Leu Asn
    130             135             140

Glu Lys Leu Gln Lys Cys Ser Lys Glu Asn Glu Glu Asn Lys Lys Gln
145             150             155                     160

Val Ser Lys Asn Cys Arg Lys His Glu Glu Phe Leu Thr Gln Leu Arg
                165             170                 175

Asp Cys Leu Asp Pro Asp Glu Arg Asn Asp Lys Ala Ser Asp Glu Asp
            180             185             190

Leu Ile Leu Lys Leu Arg Asp Leu Arg Lys Glu Asn Glu Phe Val Lys
        195             200             205

Gly Gln Ile Val Ile Leu Glu Glu Thr Ile Asn Val His Glu Met Glu
    210             215             220

Ala Lys Ala Ser Arg Glu Thr Ile Met Arg Leu Ala Ser Glu Val Asn
225             230             235                     240

Arg Glu Gln Lys Lys Ala Ala Ser Cys Thr Glu Glu Lys Glu Lys Leu
            245             250             255

Asn Gln Asp Leu Leu Ser Ala Val Glu Ala Lys Glu Ala Leu Glu Arg
            260             265             270

Glu Val Lys Ile Phe Gln Glu Arg Leu Leu Ala Gly Gln Gln Val Trp
        275             280             285

Asp Ala Ser Lys Gln Glu Val Ser Leu Leu Lys Lys Ser Ser Ser Glu
    290             295             300

Leu Glu Lys Ser Leu Lys Ala Ser Gln Asp Ala Val Thr Thr Ser Gln
305             310             315                     320

Ser Gln Tyr Ser Ser Phe Arg Glu Lys Ile Ala Ala Leu Leu Arg Gly
            325             330             335

Arg Leu Ser Met Thr Gly Ser Thr Glu Asp Thr Ile Leu Glu Lys Ile
            340             345             350

Arg Glu Met Asp Ser Arg Glu Glu Ser Arg Asp Arg Met Val Ser Gln
        355             360             365

Leu Glu Ala Gln Ile Ser Glu Leu Val Glu Gln Leu Gly Lys Glu Ser
    370             375             380

Gly Phe His Gln Lys Ala Leu Gln Arg Ala Gln Lys Ala Glu Asn Met
385             390             395                     400

Leu Glu Thr Leu Gln Gly Gln Leu Thr His Leu Glu Ala Glu Leu Val
            405             410             415

Ser Gly Gly Val Leu Arg Asp Asn Leu Asn Phe Glu Lys Gln Lys Tyr
        420             425             430

Leu Lys Phe Leu Asp Gln Leu Ser Gln Lys Met Lys Leu Asp Gln Met
    435             440             445
```

27

```
Ala Ala Glu Leu Gly Phe Asp Thr Arg Leu Asp Val Val Leu Ala Arg
    450                 455             460

Thr Glu Gln Leu Val Arg Leu Glu Ser Asn Ala Val Ile Glu Asn Lys
465                 470             475                 480

Thr Ile Ala His Asn Leu Gln Arg Lys Leu Lys Thr Gln Lys Glu Arg
                485             490             495

Leu Glu Ser Lys Glu Leu His Met Ser Leu Leu Arg Gln Lys Ile Ala
            500             505             510

Gln Leu Glu Glu Glu Lys Gln Ala Arg Thr Ala Leu Val Val Glu Arg
        515             520             525

Asp Asn Ala His Leu Thr Ile Arg Asn Leu Gln Lys Lys Val Glu Arg
    530             535             540

Leu Gln Lys Glu Leu Asn Thr Cys Arg Asp Leu His Thr Glu Leu Lys
545             550             555                 560

Ala Lys Leu Ala Asp Thr Asn Glu Leu Lys Ile Lys Thr Leu Glu Gln
            565             570             575

Thr Lys Ala Ile Glu Asp Leu Asn Lys Ser Arg Asp Gln Leu Glu Lys
            580             585             590

Met Lys Glu Lys Ala Glu Lys Lys Leu Met Ser Val Lys Ser Glu Leu
        595             600             605

Asp Thr Thr Glu His Glu Ala Lys Glu Asn Lys Glu Arg Ala Arg Asn
    610             615             620

Met Ile Glu Val Val Thr Ser Glu Met Lys Thr Leu Lys Lys Ser Leu
625             630             635                 640

Glu Glu Ala Glu Lys Arg Glu Lys Gln Leu Ala Asp Phe Arg Glu Val
            645             650             655

Val Ser Gln Met Leu Gly Leu Asn Val Thr Ser Leu Ala Leu Pro Asp
            660             665             670

Tyr Glu Ile Ile Lys Cys Leu Glu Arg Leu Val His Ser His Gln His
            675             680             685

His Phe Val Thr Cys Ala Cys Leu Lys Asp Val Thr Thr Gly Gln Glu
    690             695             700

Arg His Pro Gln Gly His Leu Gln Leu Leu His
705             710             715
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tagccataat tagcctactc aaatccaagt gtaaaagtaa aatgatttgc tttcgttttg  420
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agtctaggaa caaattggac ttggaaacat taactgacat cttcaacac cagatccgag   540
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<210> 20
<211> 290
<212> PRT
<213> Homo sapiens

<400> 20
Met Asp Ile Glu Ala Tyr Leu Glu Arg Ile Gly Tyr Lys Lys Ser Arg
  1               5                  10                  15


Asn Lys Leu Asp Leu Glu Thr Leu Thr Asp Ile Leu Gln His Gln Ile
             20                  25                  30


Arg Ala Val Pro Phe Glu Asn Leu Asn Ile His Cys Gly Asp Ala Met
             35                  40                  45


Asp Leu Gly Leu Glu Ala Ile Phe Asp Gln Val Val Arg Arg Asn Arg
     50                  55                  60


Gly Gly Trp Cys Leu Gln Val Asn His Leu Leu Tyr Trp Ala Leu Thr
 65                  70                  75                  80


Thr Ile Gly Phe Glu Thr Thr Met Leu Gly Gly Tyr Val Tyr Ser Thr
                 85                  90                  95


Pro Ala Lys Lys Tyr Ser Thr Gly Met Ile His Leu Leu Leu Gln Val
                100                 105                 110


Thr Ile Asp Gly Arg Asn Tyr Ile Val Asp Ala Gly Phe Gly Arg Ser
             115                 120                 125


Tyr Gln Met Trp Gln Pro Leu Glu Leu Ile Ser Gly Lys Asp Gln Pro
         130                 135                 140


Gln Val Pro Cys Val Phe Arg Leu Thr Glu Glu Asn Gly Phe Trp Tyr
145                 150                 155                 160
```

29

Leu Asp Gln Ile Arg Arg Glu Gln Tyr Ile Pro Asn Glu Glu Phe Leu
                165   170   175

His Ser Asp Leu Leu Glu Asp Ser Lys Tyr Arg Lys Ile Tyr Ser Phe
                180   185   190

Thr Leu Lys Pro Arg Thr Ile Glu Asp Phe Glu Ser Met Asn Thr Tyr
                195   200   205

Leu Gln Thr Ser Pro Ser Ser Val Phe Thr Ser Lys Ser Phe Cys Ser
        210   215   220

Leu Gln Thr Pro Asp Gly Val His Cys Leu Val Gly Phe Thr Leu Thr
225   230   235   240

His Arg Arg Phe Asn Tyr Lys Asp Asn Thr Asp Leu Ile Glu Phe Lys
                245   250   255

Thr Leu Ser Glu Glu Glu Ile Glu Lys Val Leu Lys Asn Ile Phe Asn
                260   265   270

Ile Ser Leu Gln Arg Lys Leu Val Pro Lys His Gly Asp Arg Phe Phe
            275   280   285

Thr Ile
    290

<210> 21
<211> 1837
<212> DNA
<213> Homo sapiens

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ccatgtgtgc cgagcggctg ggccagttca tgaccctggc tttggtgttg gccacctttg 180
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30

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<210> 22
<211> 302
<212> PRT
<213> Homo sapiens

<400> 22

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Met Cys Ala Glu Arg Leu Gly Gln Phe Met Thr Leu Ala Leu Val Leu
 1               5                  10                  15

Ala Thr Phe Asp Pro Ala Arg Gly Thr Asp Ala Thr Asn Pro Pro Glu
                20                  25                  30

Gly Pro Gln Asp Arg Ser Ser Gln Gln Lys Gly Arg Leu Ser Leu Gln
            35                  40                  45

Asn Thr Ala Glu Ile Gln His Cys Leu Val Asn Ala Gly Asp Val Gly
     50                  55                  60

Cys Gly Val Phe Glu Cys Phe Glu Asn Asn Ser Cys Glu Ile Arg Gly
 65                  70                  75                  80

Leu His Gly Ile Cys Met Thr Phe Leu His Asn Ala Gly Lys Phe Asp
                85                  90                  95

Ala Gln Gly Lys Ser Phe Ile Lys Asp Ala Leu Lys Cys Lys Ala His
            100                 105                 110

Ala Leu Arg His Arg Phe Gly Cys Ile Ser Arg Lys Cys Pro Ala Ile
            115                 120                 125

Arg Glu Met Val Ser Gln Leu Gln Arg Glu Cys Tyr Leu Lys His Asp
        130                 135                 140

Leu Cys Ala Ala Ala Gln Glu Asn Thr Arg Val Ile Val Glu Met Ile
145                 150                 155                 160

His Phe Lys Asp Leu Leu Leu His Glu Pro Tyr Val Asp Leu Val Asn
                165                 170                 175

Leu Leu Leu Thr Cys Gly Glu Glu Val Lys Glu Ala Ile Thr His Ser
            180                 185                 190

Val Gln Val Gln Cys Glu Gln Asn Trp Gly Ser Leu Cys Ser Ile Leu
        195                 200                 205

Ser Phe Cys Thr Ser Ala Ile Gln Lys Pro Pro Thr Ala Pro Pro Glu
    210                 215                 220

Arg Gln Pro Gln Val Asp Arg Thr Lys Leu Ser Arg Ala His His Gly
225                 230                 235                 240

Glu Ala Gly His His Leu Pro Glu Pro Ser Ser Arg Glu Thr Gly Arg
                245                 250                 255
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31

```
Gly Ala Lys Gly Glu Arg Gly Ser Lys Ser His Pro Asn Ala His Ala
        260                 265                 270

Arg Gly Arg Val Gly Gly Leu Gly Ala Gln Gly Pro Ser Gly Ser Ser
        275                 280                 285

Glu Trp Glu Asp Glu Gln Ser Glu Tyr Ser Asp Ile Arg Arg
    290                 295                 300


<210> 23
<211> 2560
<212> DNA
<213> Homo sapiens

<400> 23
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caactcggcc cttcgagctc tcgaagatta ccgcatctat ttttttttttc ttttttttct 180
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32

<210> 24
<211> 465
<212> PRT
<213> Homo sapiens

<400> 24
Met Phe Leu Ala Thr Leu Tyr Phe Ala Leu Pro Leu Leu Asp Leu Leu
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Leu Ser Ala Glu Val Ser Gly Gly Asp Arg Leu Asp Cys Val Lys Ala
             20   25   30

Ser Asp Gln Cys Leu Lys Glu Gln Ser Cys Ser Thr Lys Tyr Arg Thr
         35   40   45

Leu Arg Gln Cys Val Ala Gly Lys Glu Thr Asn Phe Ser Leu Ala Ser
     50   55   60

Gly Leu Glu Ala Lys Asp Glu Cys Arg Ser Ala Met Glu Ala Leu Lys
 65   70   75   80

Gln Lys Ser Leu Tyr Asn Cys Arg Cys Lys Arg Gly Met Lys Lys Glu
                 85   90   95

Lys Asn Cys Leu Arg Ile Tyr Trp Ser Met Tyr Gln Ser Leu Gln Gly
             100   105   110

Asn Asp Leu Leu Glu Asp Ser Pro Tyr Glu Pro Val Asn Ser Arg Leu
         115   120   125

Ser Asp Ile Phe Arg Val Val Pro Phe Ile Ser Asp Val Phe Gln Gln
     130   135   140

Val Glu His Ile Pro Lys Gly Asn Asn Cys Leu Asp Ala Ala Lys Ala
145   150   155   160

Cys Asn Leu Asp Asp Ile Cys Lys Lys Tyr Arg Ser Ala Tyr Ile Thr
             165   170   175

Pro Cys Thr Thr Ser Val Ser Asn Asp Val Cys Asn Arg Arg Lys Cys
             180   185   190

His Lys Ala Leu Arg Gln Phe Phe Asp Lys Val Pro Ala Lys His Ser
         195   200   205

Tyr Gly Met Leu Phe Cys Ser Cys Arg Asp Ile Ala Cys Thr Glu Arg
     210   215   220

Arg Arg Gln Thr Ile Val Pro Val Cys Ser Tyr Glu Glu Arg Glu Lys
225   230   235   240

Pro Asn Cys Leu Asn Leu Gln Asp Ser Cys Lys Thr Asn Tyr Ile Cys
             245   250   255

Arg Ser Arg Leu Ala Asp Phe Phe Thr Asn Cys Gln Pro Glu Ser Arg
             260   265   270

Ser Val Ser Ser Cys Leu Lys Glu Asn Tyr Ala Asp Cys Leu Leu Ala
             275   280   285

33

```
Tyr Ser Gly Leu Ile Gly Thr Val Met Thr Pro Asn Tyr Ile Asp Ser
    290                 295             300

Ser Ser Leu Ser Val Ala Pro Trp Cys Asp Cys Ser Asn Ser Gly Asn
305                 310                 315                 320

Asp Leu Glu Glu Cys Leu Lys Phe Leu Asn Phe Phe Lys Asp Asn Thr
                325                 330                 335

Cys Leu Lys Asn Ala Ile Gln Ala Phe Gly Asn Gly Ser Asp Val Thr
                340                 345             350

Val Trp Gln Pro Ala Phe Pro Val Gln Thr Thr Thr Ala Thr Thr Thr
        355                 360                 365

Thr Ala Leu Arg Val Lys Asn Lys Pro Leu Gly Pro Ala Gly Ser Glu
    370                 375                 380

Asn Glu Ile Pro Thr His Val Leu Pro Pro Cys Ala Asn Leu Gln Ala
385                 390                 395                 400

Gln Lys Leu Lys Ser Asn Val Ser Gly Asn Thr His Leu Cys Ile Ser
                405                 410                 415

Asn Gly Asn Tyr Glu Lys Glu Gly Leu Gly Ala Ser Ser His Ile Thr
            420                 425                 430

Thr Lys Ser Met Ala Ala Pro Pro Ser Cys Gly Leu Ser Pro Leu Leu
        435                 440                 445

Val Leu Val Val Thr Ala Leu Ser Thr Leu Leu Ser Leu Thr Glu Thr
    450                 455                 460

Ser
465


<210> 25
<211> 1576
<212> DNA
<213> Homo sapiens

<400> 25
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<210> 26
<211> 524
<212> PRT
<213> Homo sapiens

<400> 26

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  1               5                  10                  15

Asn Gly Gly Phe Gly Glu Leu Gly Cys Phe Gly Gly Ser Ala Lys Asp
                20                  25                  30

Arg Gly Leu Leu Glu Asp Glu Arg Ala Leu Gln Leu Ala Leu Asp Gln
            35                  40                  45

Leu Cys Leu Leu Gly Leu Gly Glu Pro Pro Ala Pro Arg Ala Gly Glu
        50                  55                  60

Asp Gly Gly Gly Gly Gly Gly Gly Ala Pro Ala Gln Pro Thr Ala Pro
 65                  70                  75                  80

Pro Gln Pro Ala Pro Pro Pro Pro Ala Ala Pro Pro Ala Ala Pro
                85                  90                  95

Thr Thr Ala Pro Ala Ala Gln Thr Pro Gln Pro Pro Thr Ala Pro Lys
            100                 105                 110

Gly Ala Ser Asp Ala Lys Leu Cys Ala Leu Tyr Lys Glu Ala Glu Leu
            115                 120                 125

Arg Leu Lys Gly Ser Ser Asn Thr Thr Glu Cys Val Pro Val Pro Thr
    130                 135                 140

Ser Glu His Val Ala Glu Ile Val Gly Arg Gln Gly Cys Lys Ile Lys
145                 150                 155                 160

Ala Leu Arg Ala Lys Thr Asn Thr Tyr Ile Lys Thr Pro Val Arg Gly
                165                 170                 175

Glu Glu Pro Val Phe Met Val Thr Gly Arg Arg Glu Asp Val Ala Thr
                180                 185                 190

Ala Arg Arg Glu Ile Ile Ser Ala Ala Glu His Phe Ser Met Ile Arg
            195                 200                 205

Ala Ser Arg Asn Lys Ser Gly Ala Ala Phe Gly Val Ala Pro Ala Leu
    210                 215                 220

Pro Gly Gln Val Thr Ile Arg Val Arg Val Pro Tyr Arg Val Val Gly
225                 230                 235                 240
```

```
Leu Val Val Gly Pro Lys Gly Ala Thr Ile Lys Arg Ile Gln Gln Gln
              245                 250             255

Thr Asn Thr Tyr Ile Ile Thr Pro Ser Arg Asp Arg Asp Pro Val Phe
              260             265             270

Glu Ile Thr Gly Ala Pro Gly Asn Val Glu Arg Ala Arg Glu Glu Ile
          275             280             285

Glu Thr His Ile Ala Val Arg Thr Gly Lys Ile Leu Glu Tyr Asn Asn
      290             295             300

Glu Asn Asp Phe Leu Ala Gly Ser Pro Asp Ala Ala Ile Asp Ser Arg
305             310             315             320

Tyr Ser Asp Ala Trp Arg Val His Gln Pro Gly Cys Lys Pro Leu Ser
              325             330             335

Thr Phe Arg Gln Asn Ser Leu Gly Cys Ile Gly Glu Cys Gly Val Asp
              340             345             350

Ser Gly Phe Glu Ala Pro Arg Leu Gly Glu Gln Gly Gly Asp Phe Gly
          355             360             365

Tyr Gly Gly Tyr Leu Phe Pro Gly Tyr Gly Val Gly Lys Gln Asp Val
      370             375             380

Tyr Tyr Gly Val Ala Glu Thr Ser Pro Pro Leu Trp Ala Gly Gln Glu
385             390             395             400

Asn Ala Thr Pro Thr Ser Val Leu Phe Ser Ser Ala Ser Ser Ser Ser
              405             410             415

Ser Ser Ser Ala Lys Ala Arg Ala Gly Pro Pro Gly Ala His Arg Ser
          420             425             430

Pro Ala Thr Ser Ala Gly Pro Glu Leu Ala Gly Leu Pro Arg Arg Pro
          435             440             445

Pro Gly Glu Pro Leu Gln Gly Phe Ser Lys Leu Gly Gly Gly Gly Leu
      450             455             460

Arg Ser Pro Gly Gly Gly Arg Asp Cys Met Val Cys Phe Glu Ser Glu
465             470             475             480

Val Thr Ala Ala Leu Val Pro Cys Gly His Asn Leu Phe Cys Met Glu
              485             490             495

Cys Ala Val Arg Ile Cys Glu Arg Thr Asp Pro Glu Cys Pro Val Cys
              500             505             510

His Ile Thr Ala Thr Gln Ala Ile Arg Ile Phe Ser
          515             520
```

<210> 27
<211> 2070
<212> DNA
<213> Homo sapiens

36

<400> 27
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```

<210> 28
<211> 689
<212> PRT
<213> Homo sapiens

<400> 28
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Thr Pro Gly Ser Arg Arg Arg Arg Gln Arg Pro Ser Val Gly Val Gln
            20              25              30

Ser Leu Arg Pro Gln Ser Pro Gln Leu Arg Gln Ser Asp Pro Gln Lys
        35              40              45

Arg Asn Leu Asp Leu Glu Lys Ser Leu Gln Phe Leu Gln Gln Gln His
    50              55              60

Ser Glu Met Leu Ala Lys Leu His Glu Glu Ile Glu His Leu Lys Arg
65              70              75              80

Glu Asn Lys Gly Glu Pro Ala Arg Gly Pro Arg Pro Ala Leu Pro Pro
                85              90              95
```

37

```
Gln Ala His Ser Thr Leu Pro Leu Pro Gln His Arg Asn Thr Ala Ile
            100             105             110

Asn Ser Ser Thr Arg Leu Gly Ser Gly Gly Thr Gln Asp Gly Glu Pro
            115             120             125

Leu Gln Thr Val Leu Ala His Leu Ala Ala Leu Ala Pro Val Cys Gln
        130             135             140

Pro Ser Gly Tyr Arg Phe Trp Gly Thr Trp Thr Asp Ala Ala Thr Ser
145             150             155             160

Ser Arg Gly Trp Thr Met Leu Cys Ser Gln Ala Gln His Val Leu Leu
                165             170             175

Ser Gly Ser Pro Gly Pro Glu Val Ile Ala Gly Arg Gln Val Ala Thr
            180             185             190

Gly Cys Ser Pro Asp Leu Pro Pro Pro Ser Arg Ala Glu Met Gly Arg
            195             200             205

Asn Pro Trp Asp Ser Pro Cys Pro Ala Arg Ser Leu Pro Gln Ile Ala
    210             215             220

Ala Val Ala Arg Pro Arg Ile Ser Ser Pro Met Ala Leu Ser Pro His
225             230             235             240

Met Leu Gly Ala Gln Gly Ile Trp Thr His Ser Ile Gln Gly Ser Leu
            245             250             255

Pro Ala Ile Trp Ala Ala Thr Met Gly Thr Lys Gly Gly Ser Arg Val
            260             265             270

Leu Phe Pro Cys His Leu Ser Lys Ala Leu Pro His Pro Asp Ser Gly
        275             280             285

Pro His Pro Ala Gln Asp Pro Gly Leu Trp Ser Gln Ala His Phe Pro
    290             295             300

Leu Ser Leu Gly Leu Gly Leu Thr Ser Gly Gly His Leu Thr Gly Gly
305             310             315             320

Trp Ser Gln Pro Gly Asn Ile Ala Ala Gly Ala Val Pro Arg Ala Leu
            325             330             335

Pro Ser Gln Gly Asp Met Glu Lys Gly Val Glu Gly Gly Pro Phe Pro
            340             345             350

Ser Arg Cys Gly Asn Ser Ser Glu Leu Phe Trp Ala Lys Cys Gly Pro
        355             360             365

Ser Arg Gln Pro Gln Pro Cys Ser Ala Gly Asp Ala Asp Arg Thr Arg
    370             375             380

Glu Glu Ala Met Leu Ser Leu Gly Thr Cys Cys Ser Met Cys Pro Lys
385             390             395             400

Pro Ser Cys Phe Pro Asp Gly Pro Ser Gly Asn His Leu Ser Arg Ala
            405             410             415
```

```
Ser Ala Pro Leu Gly Ala Arg Trp Val Cys Ile Asn Gly Val Trp Val
            420                 425                 430

Glu Pro Gly Gly Pro Ser Pro Ala Arg Leu Lys Glu Gly Ser Ser Arg
        435             440                 445

Thr His Arg Pro Gly Gly Lys Arg Gly Arg Leu Ala Gly Gly Ser Ala
    450                 455                 460

Asp Thr Val Arg Ser Pro Ala Asp Ser Leu Ser Met Ser Ser Phe Gln
465                 470                 475                 480

Ser Val Lys Ser Ile Ser Asn Ser Ala Asn Ser Gln Gly Lys Ala Arg
            485                 490                 495

Pro Gln Pro Gly Ser Phe Asn Lys Gln Asp Ser Lys Ala Asp Val Ser
        500                 505                 510

Gln Lys Ala Asp Leu Glu Glu Glu Pro Leu Leu His Asn Ser Lys Leu
        515                 520                 525

Asp Lys Val Pro Gly Val Gln Gly Gln Ala Arg Lys Glu Lys Ala Glu
    530                 535                 540

Ala Ser Asn Ala Gly Ala Ala Cys Met Gly Asn Ser Gln His Gln Gly
545                 550                 555                 560

Arg Gln Met Gly Ala Gly Ala His Pro Pro Met Ile Leu Pro Leu Pro
            565                 570                 575

Leu Arg Lys Pro Thr Thr Leu Arg Gln Cys Glu Val Leu Ile Arg Glu
        580                 585                 590

Leu Trp Asn Thr Asn Leu Leu Gln Thr Gln Glu Leu Arg His Leu Lys
        595                 600                 605

Ser Leu Leu Glu Gly Ser Gln Arg Pro Gln Ala Ala Pro Glu Glu Ala
    610                 615                 620

Ser Phe Pro Arg Asp Gln Glu Ala Thr His Phe Pro Lys Val Ser Thr
625                 630                 635                 640

Lys Ser Leu Ser Lys Lys Cys Leu Ser Pro Pro Val Ala Glu Arg Ala
            645                 650                 655

Ile Leu Pro Ala Leu Lys Gln Thr Pro Lys Asn Asn Phe Ala Glu Arg
            660                 665                 670

Gln Lys Arg Leu Gln Ala Met Gln Lys Arg Arg Leu His Arg Ser Val
        675                 680                 685

Leu


<210> 29
<211> 3461
<212> DNA
<213> Homo sapiens
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39

<400> 29
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40

<210> 30
<211> 755
<212> PRT
<213> Homo sapiens

<400> 30
Met Ala Arg Lys Leu Ser Val Ile Leu Ile Leu Thr Phe Ala Leu Ser
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Val Thr Asn Pro Leu His Glu Leu Lys Ala Ala Ala Phe Pro Gln Thr
            20   25   30

Thr Glu Lys Ile Ser Pro Asn Trp Glu Ser Gly Ile Asn Val Asp Leu
        35   40   45

Ala Ile Ser Thr Arg Gln Tyr His Leu Gln Gln Leu Phe Tyr Arg Tyr
    50   55   60

Gly Glu Asn Asn Ser Leu Ser Val Glu Gly Phe Arg Lys Leu Leu Gln
65   70   75   80

Asn Ile Gly Ile Asp Lys Ile Lys Arg Ile His Ile His His Asp His
                85   90   95

Asp His His Ser Asp His Glu His His Ser Asp His Glu Arg His Ser
            100   105   110

Asp His Glu His His Ser Asp His Glu His His Ser Asp His Asp His
        115   120   125

His Ser His His Asn His Ala Ala Ser Gly Lys Asn Lys Arg Lys Ala
    130   135   140

Leu Cys Pro Asp His Asp Ser Asp Ser Ser Gly Lys Asp Pro Arg Asn
145   150   155   160

Ser Gln Gly Lys Gly Ala His Arg Pro Glu His Ala Ser Gly Arg Arg
                165   170   175

Asn Val Lys Asp Ser Val Ser Ala Ser Glu Val Thr Ser Thr Val Tyr
            180   185   190

Asn Thr Val Ser Glu Gly Thr His Phe Leu Glu Thr Ile Glu Thr Pro
            195   200   205

Arg Pro Gly Lys Leu Phe Pro Lys Asp Val Ser Ser Ser Thr Pro Pro
    210   215   220

Ser Val Thr Ser Lys Ser Arg Val Ser Arg Leu Ala Gly Arg Lys Thr
225   230   235   240

Asn Glu Ser Val Ser Glu Pro Arg Lys Gly Phe Met Tyr Ser Arg Asn
            245   250   255

Thr Asn Glu Asn Pro Gln Glu Cys Phe Asn Ala Ser Lys Leu Leu Thr
        260   265   270

Ser His Gly Met Gly Ile Gln Val Pro Leu Asn Ala Thr Glu Phe Asn
    275   280   285

41

Tyr Leu Cys Pro Ala Ile Ile Asn Gln Ile Asp Ala Arg Ser Cys Leu
    290   295   300

Ile His Thr Ser Glu Lys Lys Ala Glu Ile Pro Pro Lys Thr Tyr Ser
305   310   315   320

Leu Gln Ile Ala Trp Val Gly Gly Phe Ile Ala Ile Ser Ile Ile Ser
            325   330   335

Phe Leu Ser Leu Leu Gly Val Ile Leu Val Pro Leu Met Asn Arg Val
            340   345   350

Phe Phe Lys Phe Leu Leu Ser Phe Leu Val Ala Leu Ala Val Gly Thr
        355   360   365

Leu Ser Gly Asp Ala Phe Leu His Leu Leu Pro His Ser His Ala Ser
    370   375   380

His His His Ser His Ser His Glu Glu Pro Ala Met Glu Met Lys Arg
385   390   395   400

Gly Pro Leu Phe Ser His Leu Ser Ser Gln Asn Ile Glu Glu Ser Ala
        405   410   415

Tyr Phe Asp Ser Thr Trp Lys Gly Leu Thr Ala Leu Gly Gly Leu Tyr
        420   425   430

Phe Met Phe Leu Val Glu His Val Leu Thr Leu Ile Lys Gln Phe Lys
        435   440   445

Asp Lys Lys Lys Lys Asn Gln Lys Lys Pro Glu Asn Asp Asp Asp Val
    450   455   460

Glu Ile Lys Lys Gln Leu Ser Lys Tyr Glu Ser Gln Leu Ser Thr Asn
465   470   475   480

Glu Glu Lys Val Asp Thr Asp Asp Arg Thr Glu Gly Tyr Leu Arg Ala
            485   490   495

Asp Ser Gln Glu Pro Ser His Phe Asp Ser Gln Gln Pro Ala Val Leu
        500   505   510

Glu Glu Glu Glu Val Met Ile Ala His Ala His Pro Gln Glu Val Tyr
        515   520   525

Asn Glu Tyr Val Pro Arg Gly Cys Lys Asn Lys Cys His Ser His Phe
    530   535   540

His Asp Thr Leu Gly Gln Ser Asp Asp Leu Ile His His His His Asp
545   550   555   560

Tyr His His Ile Leu His His His His His Gln Asn His His Pro His
            565   570   575

Ser His Ser Gln Arg Tyr Ser Arg Glu Glu Leu Lys Asp Ala Gly Val
        580   585   590

Ala Thr Leu Ala Trp Met Val Ile Met Gly Asp Gly Leu His Asn Phe
        595   600   605

```
Ser Asp Gly Leu Ala Ile Gly Ala Ala Phe Thr Glu Gly Leu Ser Ser
    610             615             620
```

```
Gly Leu Ser Thr Ser Val Ala Val Phe Cys His Glu Leu Pro His Glu
625             630             635             640
```

```
Leu Gly Asp Phe Ala Val Leu Leu Lys Ala Gly Met Thr Val Lys Gln
            645             650             655
```

```
Ala Val Leu Tyr Asn Ala Leu Ser Ala Met Leu Ala Tyr Leu Gly Met
            660             665             670
```

```
Ala Thr Gly Ile Phe Ile Gly His Tyr Ala Glu Asn Val Ser Met Trp
            675             680             685
```

```
Ile Phe Ala Leu Thr Ala Gly Leu Phe Met Tyr Val Ala Leu Val Asp
    690             695             700
```

```
Met Val Pro Glu Met Leu His Asn Asp Ala Ser Asp His Gly Cys Ser
705             710             715             720
```

```
Arg Trp Gly Tyr Phe Phe Leu Gln Asn Ala Gly Met Leu Leu Gly Phe
            725             730             735
```

```
Gly Ile Met Leu Leu Ile Ser Ile Phe Glu His Lys Ile Val Phe Arg
            740             745             750
```

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Ile Asn Phe
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```

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<210> 31
<211> 3085
<212> DNA
<213> Homo sapiens
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agacgcggag ggtcgaggcg gcgcggcctg agtgaaaccc aatggaaaaa gcatgacatt 180
tagaagtaga agacttagct tcaaatccct actccttcac ttactaattt tgtgatttgg 240
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gattattttc atgtaaatgc taattacatt gtctggaaaa caaaccattt tactattcct 480
aaggagcaat atactatcat aaacagaaca gcatccagtg tcacctttac agatatagct 540
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gtgaacgagg ggaagaaaat gaggtgtgag tgggatggtg aagggaaac acacttggag 720
acaaacttca ctttaaaatc tgaatgggca acacacaagt ttgctgattg caaagcaaaa 780
cgtgacaccc ccacctcatg cactgttgat tattctactg tgtattttgt caacattgaa 840
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ccttttgaag ccaatggaaa aatcttggat tatgaagtga ctctcacaag atggaaatca 1380
catttacaaa attacacagt taatgccaca aaactgacag taaatctcac aaatgatcgc 1440
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```
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gaatatacat tgtcctcttt gactagtgac acattgtaca tggtacgaat ggcagcatac 2040
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<210> 32
<211> 918
<212> PRT
<213> Homo sapiens

<400> 32
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Met Leu Thr Leu Gln Thr Trp Val Val Gln Ala Leu Phe Ile Phe Leu
 1               5                  10                  15

Thr Thr Glu Ser Thr Gly Glu Leu Leu Asp Pro Cys Gly Tyr Ile Ser
            20                  25                  30

Pro Glu Ser Pro Val Val Gln Leu His Ser Asn Phe Thr Ala Val Cys
            35                  40                  45

Val Leu Lys Glu Lys Cys Met Asp Tyr Phe His Val Asn Ala Asn Tyr
    50                  55                  60

Ile Val Trp Lys Thr Asn His Phe Thr Ile Pro Lys Glu Gln Tyr Thr
65                  70                  75                  80

Ile Ile Asn Arg Thr Ala Ser Ser Val Thr Phe Thr Asp Ile Ala Ser
                85                  90                  95

Leu Asn Ile Gln Leu Thr Cys Asn Ile Leu Thr Phe Gly Gln Leu Glu
            100                 105                 110

Gln Asn Val Tyr Gly Ile Thr Ile Ile Ser Gly Leu Pro Pro Glu Lys
            115                 120                 125
```
```

```
Pro Lys Asn Leu Ser Cys Ile Val Asn Glu Gly Lys Lys Met Arg Cys
    130             135             140

Glu Trp Asp Gly Gly Arg Glu Thr His Leu Glu Thr Asn Phe Thr Leu
145             150             155             160

Lys Ser Glu Trp Ala Thr His Lys Phe Ala Asp Cys Lys Ala Lys Arg
            165             170             175

Asp Thr Pro Thr Ser Cys Thr Val Asp Tyr Ser Thr Val Tyr Phe Val
            180             185             190

Asn Ile Glu Val Trp Val Glu Ala Glu Asn Ala Leu Gly Lys Val Thr
            195             200             205

Ser Asp His Ile Asn Phe Asp Pro Val Tyr Lys Val Lys Pro Asn Pro
    210             215             220

Pro His Asn Leu Ser Val Ile Asn Ser Glu Glu Leu Ser Ser Ile Leu
225             230             235             240

Lys Leu Thr Trp Thr Asn Pro Ser Ile Lys Ser Val Ile Ile Leu Lys
            245             250             255

Tyr Asn Ile Gln Tyr Arg Thr Lys Asp Ala Ser Thr Trp Ser Gln Ile
            260             265             270

Pro Pro Glu Asp Thr Ala Ser Thr Arg Ser Ser Phe Thr Val Gln Asp
    275             280             285

Leu Lys Pro Phe Thr Glu Tyr Val Phe Arg Ile Arg Cys Met Lys Glu
    290             295             300

Asp Gly Lys Gly Tyr Trp Ser Asp Trp Ser Glu Glu Ala Ser Gly Ile
305             310             315             320

Thr Tyr Glu Asp Arg Pro Ser Lys Ala Pro Ser Phe Trp Tyr Lys Ile
            325             330             335

Asp Pro Ser His Thr Gln Gly Tyr Arg Thr Val Gln Leu Val Trp Lys
            340             345             350

Thr Leu Pro Pro Phe Glu Ala Asn Gly Lys Ile Leu Asp Tyr Glu Val
            355             360             365

Thr Leu Thr Arg Trp Lys Ser His Leu Gln Asn Tyr Thr Val Asn Ala
    370             375             380

Thr Lys Leu Thr Val Asn Leu Thr Asn Asp Arg Tyr Leu Ala Thr Leu
385             390             395             400

Thr Val Arg Asn Leu Val Gly Lys Ser Asp Ala Ala Val Leu Thr Ile
            405             410             415

Pro Ala Cys Asp Phe Gln Ala Thr His Pro Val Met Asp Leu Lys Ala
            420             425             430

Phe Pro Lys Asp Asn Met Leu Trp Val Glu Trp Thr Thr Pro Arg Glu
    435             440             445
```

```
Ser Val Lys Lys Tyr Ile Leu Glu Trp Cys Val Leu Ser Asp Lys Ala
    450             455         460

Pro Cys Ile Thr Asp Trp Gln Gln Glu Asp Gly Thr Val His Arg Thr
465             470             475                 480

Tyr Leu Arg Gly Asn Leu Ala Glu Ser Lys Cys Tyr Leu Ile Thr Val
            485             490                 495

Thr Pro Val Tyr Ala Asp Gly Pro Gly Ser Pro Glu Ser Ile Lys Ala
            500             505                 510

Tyr Leu Lys Gln Ala Pro Pro Ser Lys Gly Pro Thr Val Arg Thr Lys
        515             520                 525

Lys Val Gly Lys Asn Glu Ala Val Leu Glu Trp Asp Gln Leu Pro Val
    530             535                 540

Asp Val Gln Asn Gly Phe Ile Arg Asn Tyr Thr Ile Phe Tyr Arg Thr
545             550             555                 560

Ile Ile Gly Asn Glu Thr Ala Val Asn Val Asp Ser Ser His Thr Glu
            565             570                 575

Tyr Thr Leu Ser Ser Leu Thr Ser Asp Thr Leu Tyr Met Val Arg Met
        580             585                 590

Ala Ala Tyr Thr Asp Glu Gly Gly Lys Asp Gly Pro Glu Phe Thr Phe
        595             600             605

Thr Thr Pro Lys Phe Ala Gln Gly Glu Ile Glu Ala Ile Val Val Pro
    610             615             620

Val Cys Leu Ala Phe Leu Leu Thr Thr Leu Leu Gly Val Leu Phe Cys
625             630             635                 640

Phe Asn Lys Arg Asp Leu Ile Lys Lys His Ile Trp Pro Asn Val Pro
            645             650                 655

Asp Pro Ser Lys Ser His Ile Ala Gln Trp Ser Pro His Thr Pro Pro
            660             665                 670

Arg His Asn Phe Asn Ser Lys Asp Gln Met Tyr Ser Asp Gly Asn Phe
        675             680                 685

Thr Asp Val Ser Val Val Glu Ile Glu Ala Asn Asp Lys Lys Pro Phe
    690             695             700

Pro Glu Asp Leu Lys Ser Leu Asp Leu Phe Lys Lys Glu Lys Ile Asn
705             710             715                 720

Thr Glu Gly His Ser Ser Gly Ile Gly Gly Ser Ser Cys Met Ser Ser
            725             730                 735

Ser Arg Pro Ser Ile Ser Ser Ser Asp Glu Asn Glu Ser Ser Gln Asn
        740             745                 750

Thr Ser Ser Thr Val Gln Tyr Ser Thr Val Val His Ser Gly Tyr Arg
        755             760                 765
```

46

His Gln Val Pro Ser Val Gln Val Phe Ser Arg Ser Glu Ser Thr Gln
    770   775   780

Pro Leu Leu Asp Ser Glu Glu Arg Pro Glu Asp Leu Gln Leu Val Asp
785   790   795   800

His Val Asp Gly Gly Asp Gly Ile Leu Pro Arg Gln Gln Tyr Phe Lys
           805   810   815

Gln Asn Cys Ser Gln His Glu Ser Ser Pro Asp Ile Ser His Phe Glu
         820   825   830

Arg Ser Lys Gln Val Ser Ser Val Asn Glu Glu Asp Phe Val Arg Leu
      835   840   845

Lys Gln Gln Ile Ser Asp His Ile Ser Gln Ser Cys Gly Ser Gly Gln
    850   855   860

Met Lys Met Phe Gln Glu Val Ser Ala Ala Asp Ala Phe Gly Pro Gly
865   870   875   880

Thr Glu Gly Gln Val Glu Arg Phe Glu Thr Val Gly Met Glu Ala Ala
          885   890   895

Thr Asp Glu Gly Met Pro Lys Ser Tyr Leu Pro Gln Thr Val Arg Gln
         900   905   910

Gly Gly Tyr Met Pro Gln
         915

<210> 33
<211> 2494
<212> DNA
<213> Homo sapiens

<400> 33
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ctgctccgtg gtgctctatg accccctgaa aagggttgtt gttaccaact tgaatggtca 180
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tggaaatgga tttgctttgg ctctctgctt atcttttttg ccaaatactg atgtaccaat 540
attagcatgt ggcaatgatg attgcagaat tcacatattt gctcaacaaa atgatcagtt 600
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47

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tgatcaagtt ccagaaataa atgactggac ccactgtgta gaaacaagtc aaagccaaag 2340
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ggaagcagaa ggtgctgagt ggttacactt tgcaagctgt ggtgaagatc acactgtgaa 2460
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<210> 34
<211> 826
<212> PRT
<213> Homo sapiens

<400> 34
Met Val Ala Pro Val Leu Glu Thr Ser His Val Phe Cys Cys Pro Asn
  1               5                  10                  15


Arg Val Arg Gly Val Leu Asn Trp Ser Ser Gly Pro Arg Gly Leu Leu
             20                  25                  30


Ala Phe Gly Thr Ser Cys Ser Val Val Leu Tyr Asp Pro Leu Lys Arg
             35                  40                  45


Val Val Val Thr Asn Leu Asn Gly His Thr Ala Arg Val Asn Cys Ile
         50                  55                  60


Gln Trp Ile Cys Lys Gln Asp Gly Ser Pro Ser Thr Glu Leu Val Ser
 65                  70                  75                  80


Gly Gly Ser Asp Asn Gln Val Ile His Trp Glu Ile Glu Asp Asn Gln
                 85                  90                  95


Leu Leu Lys Ala Val His Leu Gln Gly His Glu Gly Pro Val Tyr Ala
             100                 105                 110


Val His Ala Val Tyr Gln Arg Arg Thr Ser Asp Pro Ala Leu Cys Thr
             115                 120                 125


Leu Ile Val Ser Ala Ala Ala Asp Ser Ala Val Arg Leu Trp Ser Lys
         130                 135                 140


Lys Gly Pro Glu Val Met Cys Leu Gln Thr Leu Asn Phe Gly Asn Gly
145                 150                 155                 160


Phe Ala Leu Ala Leu Cys Leu Ser Phe Leu Pro Asn Thr Asp Val Pro
                 165                 170                 175


Ile Leu Ala Cys Gly Asn Asp Asp Cys Arg Ile His Ile Phe Ala Gln
             180                 185                 190
```

48

```
Gln Asn Asp Gln Phe Gln Lys Val Leu Ser Leu Cys Gly His Glu Asp
        195                 200             205

Trp Ile Arg Gly Val Glu Trp Ala Ala Phe Gly Arg Asp Leu Phe Leu
    210             215                 220

Ala Ser Cys Ser Gln Asp Cys Leu Ile Arg Ile Trp Lys Leu Tyr Ile
225             230                 235                 240

Lys Ser Thr Ser Leu Glu Thr Gln Asp Asp Asp Asn Ile Arg Leu Lys
            245             250                 255

Glu Asn Thr Phe Thr Ile Glu Asn Glu Ser Val Lys Ile Ala Phe Ala
            260             265                 270

Val Thr Leu Glu Thr Val Leu Ala Gly His Glu Asn Trp Val Asn Ala
        275             280                 285

Val His Trp Gln Pro Val Phe Tyr Lys Asp Gly Val Leu Gln Gln Pro
    290             295                 300

Val Arg Leu Leu Ser Ala Ser Met Asp Lys Thr Met Ile Leu Trp Ala
305             310                 315                 320

Pro Asp Glu Glu Ser Gly Val Trp Leu Glu Gln Val Arg Val Gly Glu
            325             330                 335

Val Gly Gly Asn Thr Leu Gly Phe Tyr Asp Cys Gln Phe Asn Glu Asp
        340             345                 350

Gly Ser Met Ile Ile Ala His Ala Phe His Gly Ala Leu His Leu Trp
        355             360                 365

Lys Gln Asn Thr Val Asn Pro Arg Glu Trp Thr Pro Glu Ile Val Ile
    370             375                 380

Ser Gly His Phe Asp Gly Val Gln Asp Leu Val Trp Asp Pro Glu Gly
385             390                 395                 400

Glu Phe Ile Ile Thr Val Gly Thr Asp Gln Thr Thr Arg Leu Phe Ala
            405             410                 415

Pro Trp Lys Arg Lys Asp Gln Ser Gln Val Thr Trp His Glu Ile Ala
        420             425                 430

Arg Pro Gln Ile His Gly Tyr Asp Leu Lys Cys Leu Ala Met Ile Asn
        435             440                 445

Arg Phe Gln Phe Val Ser Gly Ala Asp Glu Lys Val Leu Arg Val Phe
    450             455                 460

Ser Ala Pro Arg Asn Phe Val Glu Asn Phe Cys Ala Ile Thr Gly Gln
465             470                 475                 480

Ser Leu Asn His Val Leu Cys Asn Gln Asp Ser Asp Leu Pro Glu Gly
            485             490                 495

Ala Thr Val Pro Ala Leu Gly Leu Ser Asn Lys Ala Val Phe Gln Gly
        500             505                 510
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49

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Asp Ile Ala Ser Gln Pro Ser Asp Glu Glu Glu Leu Leu Thr Ser Thr
        515             520                 525

Gly Phe Glu Tyr Gln Gln Val Ala Phe Gln Pro Ser Ile Leu Thr Glu
    530             535                 540

Pro Pro Thr Glu Asp His Leu Leu Gln Asn Thr Leu Trp Pro Glu Val
545                 550                 555                 560

Gln Lys Leu Tyr Gly His Gly Tyr Glu Ile Phe Cys Val Thr Cys Asn
                565                 570                 575

Ser Ser Lys Thr Leu Leu Ala Ser Ala Cys Lys Ala Ala Lys Lys Glu
            580             585                 590

His Ala Ala Ile Ile Leu Trp Asn Thr Thr Ser Trp Lys Gln Val Gln
    595                 600                 605

Asn Leu Val Phe His Ser Leu Thr Val Thr Gln Met Ala Phe Ser Pro
    610                 615                 620

Asn Glu Lys Phe Leu Leu Ala Val Ser Arg Asp Arg Thr Trp Ser Leu
625                 630                 635                 640

Trp Lys Lys Gln Asp Thr Ile Ser Pro Glu Phe Glu Pro Val Phe Ser
            645                 650                 655

Leu Phe Ala Phe Thr Asn Lys Ile Thr Ser Val His Ser Arg Ile Ile
            660                 665                 670

Trp Ser Cys Asp Trp Ser Pro Asp Ser Lys Tyr Phe Phe Thr Gly Ser
        675                 680                 685

Arg Asp Lys Lys Val Val Val Trp Gly Glu Cys Asp Ser Thr Asp Asp
    690                 695                 700

Cys Ile Glu His Asn Ile Gly Pro Cys Ser Ser Val Leu Asp Val Gly
705                 710                 715                 720

Gly Ala Val Thr Ala Val Ser Val Cys Pro Val Leu His Pro Ser Gln
            725                 730                 735

Arg Tyr Val Val Ala Val Gly Leu Glu Cys Gly Lys Ile Cys Leu Tyr
        740                 745                 750

Thr Trp Lys Lys Thr Asp Gln Val Pro Glu Ile Asn Asp Trp Thr His
        755                 760                 765

Cys Val Glu Thr Ser Gln Ser Gln Ser His Thr Leu Ala Ile Arg Lys
    770                 775                 780

Leu Cys Trp Lys Asn Cys Ser Gly Lys Thr Glu Gln Lys Glu Ala Glu
785                 790                 795                 800

Gly Ala Glu Trp Leu His Phe Ala Ser Cys Gly Glu Asp His Thr Val
            805                 810                 815

Lys Ile His Arg Val Asn Lys Cys Ala Leu
        820                 825
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<210> 35
<211> 4694
<212> DNA
<213> Homo sapiens

<400> 35
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caataagcac aagccatgga tcgagacttc atatcatgga gtcataactg agaacaatga 180
cacagtcatt ttggacccac cactggtagc cctggataaa gatgcaccgg ttccttttgc 240
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caacaagaca tcaggagagg gccggctccg tgccaagagc cccattgact gtgagttgca 360
gaaggagtac acattcatca tccaggccta tgactgtggt gctgggcccc acgagacagc 420
ctggaaaaag tcacacaagg ccgtggtcca tatacaggtg aaggatgtca acgagtttgc 480
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cattctgcag gtggaggcca ttgacgagga ctgctcccca cagtacagcc agatctgcaa 600
ctatgaaatc gtcaccacag atgtgccttt tgccatcgac agaaatggca acatcaggaa 660
cactgagaag ctgagctatg acaaacaaca ccagtatgag atcctggtga ccgcctacga 720
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51

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<210> 36
<211> 955
<212> PRT
<213> Homo sapiens

<400> 36

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              20   25   30

Leu Ala Ala Lys Val Asn Lys His Lys Pro Trp Ile Glu Thr Ser Tyr
          35   40   45

His Gly Val Ile Thr Glu Asn Asn Asp Thr Val Ile Leu Asp Pro Pro
      50   55   60

Leu Val Ala Leu Asp Lys Asp Ala Pro Val Pro Phe Ala Gly Glu Ile
65   70   75   80

Cys Ala Phe Lys Ile His Gly Gln Glu Leu Pro Phe Glu Ala Val Val
              85   90   95

Leu Asn Lys Thr Ser Gly Glu Gly Arg Leu Arg Ala Lys Ser Pro Ile
              100   105   110

Asp Cys Glu Leu Gln Lys Glu Tyr Thr Phe Ile Ile Gln Ala Tyr Asp
          115   120   125

Cys Gly Ala Gly Pro His Glu Thr Ala Trp Lys Lys Ser His Lys Ala
      130   135   140

Val Val His Ile Gln Val Lys Asp Val Asn Glu Phe Ala Pro Thr Phe
145   150   155   160

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Lys Glu Pro Ala Tyr Lys Ala Val Val Thr Glu Gly Lys Ile Tyr Asp
                165             170             175

Ser Ile Leu Gln Val Glu Ala Ile Asp Glu Asp Cys Ser Pro Gln Tyr
            180             185             190

Ser Gln Ile Cys Asn Tyr Glu Ile Val Thr Thr Asp Val Pro Phe Ala
        195             200             205

Ile Asp Arg Asn Gly Asn Ile Arg Asn Thr Glu Lys Leu Ser Tyr Asp
    210             215             220

Lys Gln His Gln Tyr Glu Ile Leu Val Thr Ala Tyr Asp Cys Gly Gln
225             230             235             240

Lys Pro Ala Ala Gln Asp Thr Leu Val Gln Val Asp Val Lys Pro Val
            245             250             255

Cys Lys Pro Gly Trp Gln Asp Trp Thr Lys Arg Ile Glu Tyr Gln Pro
            260             265             270

Gly Ser Gly Ser Met Pro Leu Phe Pro Ser Ile His Leu Glu Thr Cys
        275             280             285

Asp Gly Ala Val Ser Ser Leu Gln Ile Val Thr Glu Leu Gln Thr Asn
    290             295             300

Tyr Ile Gly Lys Gly Cys Asp Arg Glu Thr Tyr Ser Glu Lys Ser Leu
305             310             315             320

Gln Lys Leu Cys Gly Ala Ser Ser Gly Ile Ile Asp Leu Leu Pro Ser
            325             330             335

Pro Ser Ala Ala Thr Asn Trp Thr Ala Gly Leu Leu Val Asp Ser Ser
            340             345             350

Glu Met Ile Phe Lys Phe Asp Gly Arg Gln Gly Ala Lys Ile Pro Asp
        355             360             365

Gly Ile Val Pro Lys Asn Leu Thr Asp Gln Phe Thr Ile Thr Met Trp
    370             375             380

Met Lys His Gly Pro Ser Pro Gly Val Arg Ala Glu Lys Glu Thr Ile
385             390             395             400

Leu Cys Asn Ser Asp Lys Thr Glu Met Asn Arg His His Tyr Ala Leu
            405             410             415

Tyr Val His Asn Cys Arg Leu Val Phe Leu Leu Arg Lys Asp Phe Asp
            420             425             430

Gln Ala Asp Thr Phe Arg Pro Ala Glu Phe His Trp Lys Leu Asp Gln
        435             440             445

Ile Cys Asp Lys Glu Trp His Tyr Tyr Val Ile Asn Val Glu Phe Pro
    450             455             460

Val Val Thr Leu Tyr Met Asp Gly Ala Thr Tyr Glu Pro Tyr Leu Val
465             470             475             480
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53

Thr Asn Asp Trp Pro Ile His Pro Ser His Ile Ala Met Gln Leu Thr
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Val Gly Ala Cys Trp Gln Gly Gly Glu Val Thr Lys Pro Gln Phe Ala
              500   505   510

Gln Phe Phe His Gly Ser Leu Ala Ser Leu Thr Ile Arg Pro Gly Lys
              515   520   525

Met Glu Ser Gln Lys Val Ile Ser Cys Leu Gln Ala Cys Lys Glu Gly
      530   535   540

Leu Asp Ile Asn Ser Leu Glu Ser Leu Gly Gln Gly Ile Lys Tyr His
545   550   555   560

Phe Asn Pro Ser Gln Ser Ile Leu Val Met Glu Gly Asp Asp Ile Gly
              565   570   575

Asn Ile Asn Arg Ala Leu Gln Lys Val Ser Tyr Ile Asn Ser Arg Gln
              580   585   590

Phe Pro Thr Ala Gly Val Arg Arg Leu Lys Val Ser Ser Lys Val Gln
              595   600   605

Cys Phe Gly Glu Asp Val Cys Ile Ser Ile Pro Glu Val Asp Ala Tyr
      610   615   620

Val Met Val Leu Gln Ala Ile Glu Pro Arg Ile Thr Leu Arg Gly Thr
625   630   635   640

Asp His Phe Trp Arg Pro Ala Ala Gln Phe Glu Ser Ala Arg Gly Val
              645   650   655

Thr Leu Phe Pro Asp Ile Lys Ile Val Ser Thr Phe Ala Lys Thr Glu
              660   665   670

Ala Pro Gly Asp Val Lys Thr Thr Asp Pro Lys Ser Glu Val Leu Glu
              675   680   685

Glu Met Leu His Asn Leu Asp Phe Cys Asp Ile Leu Val Ile Gly Gly
      690   695   700

Asp Leu Asp Pro Arg Gln Glu Cys Leu Glu Leu Asn His Ser Glu Leu
705   710   715   720

His Gln Arg His Leu Asp Ala Thr Asn Ser Thr Ala Gly Tyr Ser Ile
              725   730   735

Tyr Gly Val Gly Ser Met Ser Arg Tyr Glu Gln Val Leu His His Ile
              740   745   750

Arg Tyr Arg Asn Trp Arg Pro Ala Ser Leu Glu Ala Arg Arg Phe Arg
              755   760   765

Ile Lys Cys Ser Glu Leu Asn Gly Arg Tyr Thr Ser Asn Glu Phe Asn
      770   775   780

Leu Glu Val Ser Ile Leu His Glu Asp Gln Val Ser Asp Lys Glu His
785   790   795   800

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Val Asn His Leu Ile Val Gln Pro Pro Phe Leu Gln Ser Val His His
              805              810             815

Pro Glu Ser Arg Ser Ser Ile Gln His Ser Ser Val Val Pro Ser Ile
              820              825             830

Ala Thr Val Val Ile Ile Ile Ser Val Cys Met Leu Val Phe Val Val
              835              840             845

Ala Met Gly Val Tyr Arg Val Arg Ile Ala His Gln His Phe Ile Gln
    850              855             860

Glu Thr Glu Ala Ala Lys Glu Ser Glu Met Asp Trp Asp Asp Ser Ala
865              870             875             880

Leu Thr Ile Thr Val Asn Pro Met Glu Lys His Glu Gly Pro Gly His
              885              890             895

Gly Glu Asp Glu Thr Glu Gly Glu Glu Glu Glu Ala Glu Glu Glu
              900              905             910

Met Ser Ser Ser Ser Gly Ser Asp Asp Ser Glu Glu Glu Glu Glu Glu
    915              920             925

Glu Gly Met Gly Arg Gly Arg His Gly Gln Asn Gly Ala Arg Gln Ala
    930              935             940

Gln Leu Glu Trp Asp Asp Ser Thr Leu Pro Tyr
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<211> 1284
<212> DNA
<213> Homo sapiens

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<210> 38
<211> 243
<212> PRT
<213> Homo sapiens

<400> 38
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Leu Leu Leu Leu Leu Leu Gln Leu Pro Ala Pro Ser Ser Ala Ser Glu
                 20                  25                  30

Ile Pro Lys Gly Lys Gln Lys Ala Gln Leu Arg Gln Arg Glu Val Val
         35                  40                  45

Asp Leu Tyr Asn Gly Met Cys Leu Gln Gly Pro Ala Gly Val Pro Gly
     50                  55                  60

Arg Asp Gly Ser Pro Gly Ala Asn Gly Ile Pro Gly Thr Pro Gly Ile
 65                  70                  75                  80

Pro Gly Arg Asp Gly Phe Lys Gly Glu Lys Gly Glu Cys Leu Arg Glu
                 85                  90                  95

Ser Phe Glu Glu Ser Trp Thr Pro Asn Tyr Lys Gln Cys Ser Trp Ser
            100                 105                 110

Ser Leu Asn Tyr Gly Ile Asp Leu Gly Lys Ile Ala Glu Cys Thr Phe
            115                 120                 125

Thr Lys Met Arg Ser Asn Ser Ala Leu Arg Val Leu Phe Ser Gly Ser
    130                 135                 140

Leu Arg Leu Lys Cys Arg Asn Ala Cys Cys Gln Arg Trp Tyr Phe Thr
145                 150                 155                 160

Phe Asn Gly Ala Glu Cys Ser Gly Pro Leu Pro Ile Glu Ala Ile Ile
                165                 170                 175

Tyr Leu Asp Gln Gly Ser Pro Glu Met Asn Ser Thr Ile Asn Ile His
            180                 185                 190

Arg Thr Ser Ser Val Glu Gly Leu Cys Glu Gly Ile Gly Ala Gly Leu
            195                 200                 205

Val Asp Val Ala Ile Trp Val Gly Thr Cys Ser Asp Tyr Pro Lys Gly
    210                 215                 220

Asp Ala Ser Thr Gly Trp Asn Ser Val Ser Arg Ile Ile Ile Glu Glu
225                 230                 235                 240

Leu Pro Lys
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<210> 39
<211> 2723
<212> DNA
<213> Homo sapiens

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<210> 40
<211> 622
<212> PRT
<213> Homo sapiens

<400> 40
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Leu Asn Thr Cys Leu Leu Asn Gly Gln Leu Pro Pro Gly Lys Pro Glu
            20                  25                  30
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Ile Phe Lys Cys Arg Ser Pro Asn Lys Glu Thr Phe Thr Cys Trp Trp
        35   40   45

Arg Pro Gly Thr Asp Gly Gly Leu Pro Thr Asn Tyr Ser Leu Thr Tyr
        50   55   60

His Arg Glu Gly Glu Thr Leu Met His Glu Cys Pro Asp Tyr Ile Thr
65   70   75   80

Gly Gly Pro Asn Ser Cys His Phe Gly Lys Gln Tyr Thr Ser Met Trp
                85   90   95

Arg Thr Tyr Ile Met Met Val Asn Ala Thr Asn Gln Met Gly Ser Ser
            100   105   110

Phe Ser Asp Glu Leu Tyr Val Asp Val Thr Tyr Ile Val Gln Pro Asp
        115   120   125

Pro Pro Leu Glu Leu Ala Val Glu Val Lys Gln Pro Glu Asp Arg Lys
    130   135   140

Pro Tyr Leu Trp Ile Lys Trp Ser Pro Pro Thr Leu Ile Asp Leu Lys
145   150   155   160

Thr Gly Trp Phe Thr Leu Leu Tyr Glu Ile Arg Leu Lys Pro Glu Lys
            165   170   175

Ala Ala Glu Trp Glu Ile His Phe Ala Gly Gln Gln Thr Glu Phe Lys
        180   185   190

Ile Leu Ser Leu His Pro Gly Gln Lys Tyr Leu Val Gln Val Arg Cys
        195   200   205

Lys Pro Asp His Gly Tyr Trp Ser Ala Trp Ser Pro Ala Thr Phe Ile
    210   215   220

Gln Ile Pro Ser Asp Phe Thr Met Asn Asp Thr Thr Val Trp Ile Ser
225   230   235   240

Val Ala Val Leu Ser Ala Val Ile Cys Leu Ile Ile Val Trp Ala Val
            245   250   255

Ala Leu Lys Gly Tyr Ser Met Val Thr Cys Ile Phe Pro Pro Val Pro
            260   265   270

Gly Pro Lys Ile Lys Gly Phe Asp Ala His Leu Leu Glu Lys Gly Lys
        275   280   285

Ser Glu Glu Leu Leu Ser Ala Leu Gly Cys Gln Asp Phe Pro Pro Thr
    290   295   300

Ser Asp Tyr Glu Asp Leu Leu Val Glu Tyr Leu Glu Val Asp Asp Ser
305   310   315   320

Glu Asp Gln His Leu Met Ser Val His Ser Lys Glu His Pro Ser Gln
            325   330   335

Gly Met Lys Pro Thr Tyr Leu Asp Pro Asp Thr Asp Ser Gly Arg Gly
        340   345   350

```
Ser Cys Asp Ser Pro Ser Leu Leu Ser Glu Lys Cys Glu Glu Pro Gln
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Ala Asn Pro Ser Thr Phe Tyr Asp Pro Glu Val Ile Glu Lys Pro Glu
        370              375              380

Asn Pro Glu Thr Thr His Thr Trp Asp Pro Gln Cys Ile Ser Met Glu
385              390              395              400

Gly Lys Ile Pro Tyr Phe His Ala Gly Gly Ser Lys Cys Ser Thr Trp
            405              410              415

Pro Leu Pro Gln Pro Ser Gln His Asn Pro Arg Ser Ser Tyr His Asn
            420              425              430

Ile Thr Asp Val Cys Glu Leu Ala Val Gly Pro Ala Gly Ala Pro Ala
        435              440              445

Thr Leu Leu Asn Glu Ala Gly Lys Asp Ala Leu Lys Ser Ser Gln Thr
    450              455              460

Ile Lys Ser Arg Glu Glu Gly Lys Ala Thr Gln Gln Arg Glu Val Glu
465              470              475              480

Ser Phe His Ser Glu Thr Asp Gln Asp Thr Pro Trp Leu Leu Pro Gln
            485              490              495

Glu Lys Thr Pro Phe Gly Ser Ala Lys Pro Leu Asp Tyr Val Glu Ile
        500              505              510

His Lys Val Asn Lys Asp Gly Ala Leu Ser Leu Leu Pro Lys Gln Arg
        515              520              525

Glu Asn Ser Gly Lys Pro Lys Lys Pro Gly Thr Pro Glu Asn Asn Lys
    530              535              540

Glu Tyr Ala Lys Val Ser Gly Val Met Asp Asn Asn Ile Leu Val Leu
545              550              555              560

Val Pro Asp Pro His Ala Lys Asn Val Ala Cys Phe Glu Glu Ser Ala
            565              570              575

Lys Glu Ala Pro Pro Ser Leu Glu Gln Asn Gln Ala Glu Lys Ala Leu
            580              585              590

Ala Asn Phe Thr Ala Thr Ser Ser Lys Cys Arg Leu Gln Leu Gly Gly
        595              600              605

Leu Asp Tyr Leu Asp Pro Ala Cys Phe Thr His Ser Phe His
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<210> 41
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<212> DNA
<213> Homo sapiens

<400> 41
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atcatcaaga catttggtgt cttctttaat gacttaatgg acagttttaa tgaatccaat   180
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59

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gtcagcaccg ggatggtggc cgcctccttc tcacaagagg tttctcatat gtacgtcgcc 360
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tcacaatatt ttggcaaaag acgttccata gtcactgcag ttgcttccac aggagaatgt 480
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<210> 42
<211> 523
<212> PRT
<213> Homo sapiens

<400> 42

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Glu	Val	Pro	Asp	Gly	Gly	Trp	Gly	Trp	Ala	Val	Ala	Val	Ser	Phe	Phe
			20					25					30		

Phe	Val	Glu	Val	Phe	Thr	Tyr	Gly	Ile	Ile	Lys	Thr	Phe	Gly	Val	Phe
		35					40					45			

Phe	Asn	Asp	Leu	Met	Asp	Ser	Phe	Asn	Glu	Ser	Asn	Ser	Arg	Ile	Ser
	50					55					60				

Trp	Ile	Ile	Ser	Ile	Cys	Val	Phe	Val	Leu	Thr	Phe	Ser	Ala	Pro	Leu
65					70					75					80

Ala	Thr	Val	Leu	Ser	Asn	Arg	Phe	Gly	His	Arg	Leu	Val	Val	Met	Leu
				85					90					95	

Gly	Gly	Leu	Leu	Val	Ser	Thr	Gly	Met	Val	Ala	Ala	Ser	Phe	Ser	Gln
			100					105					110		

Glu	Val	Ser	His	Met	Tyr	Val	Ala	Ile	Gly	Ile	Ile	Ser	Gly	Leu	Gly
		115				120					125				

Tyr	Cys	Phe	Ser	Phe	Leu	Pro	Thr	Val	Thr	Ile	Leu	Ser	Gln	Tyr	Phe
	130					135					140				

Gly	Lys	Arg	Arg	Ser	Ile	Val	Thr	Ala	Val	Ala	Ser	Thr	Gly	Glu	Cys
145				150					155					160	

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Phe Ala Val Phe Ala Phe Ala Pro Ala Ile Met Ala Leu Lys Glu Arg
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Ile Gly Trp Arg Tyr Ser Leu Leu Phe Val Gly Leu Leu Gln Leu Asn
            180                 185                 190

Ile Val Ile Phe Gly Ala Leu Leu Arg Pro Ile Phe Ile Arg Gly Pro
        195                 200                 205

Ala Ser Pro Lys Ile Val Ile Gln Glu Asn Arg Lys Glu Ala Gln Tyr
    210                 215                 220

Met Leu Glu Asn Glu Lys Thr Arg Thr Ser Ile Asp Ser Ile Asp Ser
225                 230                 235                 240

Gly Val Glu Leu Thr Thr Ser Pro Lys Asn Val Pro Thr His Thr Asn
            245                 250                 255

Leu Glu Leu Glu Pro Lys Ala Asp Met Gln Gln Val Leu Val Lys Thr
            260                 265                 270

Ser Pro Arg Pro Ser Glu Lys Lys Ala Pro Leu Leu Asp Phe Ser Ile
        275                 280                 285

Leu Lys Glu Lys Ser Phe Ile Cys Tyr Ala Leu Phe Gly Leu Phe Ala
    290                 295                 300

Thr Leu Gly Phe Phe Ala Pro Ser Leu Tyr Ile Ile Pro Leu Gly Ile
305                 310                 315                 320

Ser Leu Gly Ile Asp Gln Asp Arg Ala Ala Phe Leu Leu Ser Thr Met
            325                 330                 335

Ala Ile Ala Glu Val Phe Gly Arg Ile Gly Ala Gly Phe Val Leu Asn
            340                 345                 350

Arg Glu Pro Ile Arg Lys Ile Tyr Ile Glu Leu Ile Cys Val Ile Leu
        355                 360                 365

Leu Thr Val Ser Leu Phe Ala Phe Thr Phe Ala Thr Glu Phe Trp Gly
    370                 375                 380

Leu Met Ser Cys Ser Ile Phe Phe Gly Phe Met Val Gly Thr Ile Gly
385                 390                 395                 400

Gly Thr His Ile Pro Leu Leu Ala Glu Asp Asp Val Val Gly Ile Glu
            405                 410                 415

Lys Met Ser Ser Ala Ala Gly Val Tyr Ile Phe Ile Gln Ser Ile Ala
            420                 425                 430

Gly Leu Ala Gly Pro Pro Leu Ala Gly Leu Leu Val Asp Gln Ser Lys
        435                 440                 445

Ile Tyr Ser Arg Ala Phe Tyr Ser Cys Ala Ala Gly Met Ala Leu Ala
    450                 455                 460

Ala Val Cys Leu Ala Leu Val Arg Pro Cys Lys Met Gly Leu Cys Gln
465                 470                 475                 480
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61

His His His Ser Gly Glu Thr Lys Val Val Ser His Arg Gly Lys Thr
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Leu Gln Asp Ile Pro Glu Asp Phe Leu Glu Met Asp Leu Ala Lys Asn
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Glu His Arg Val His Val Gln Met Glu Pro Val
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<210> 43
<211> 3690
<212> DNA
<213> Homo sapiens

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62

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<210> 44
<211> 582
<212> PRT
<213> Homo sapiens

<400> 44
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Tyr Thr Pro Gly Gly Lys Lys Leu Pro Trp Glu Ala Ser Ile Gly Ala
            20                  25                  30


His Thr Ser Arg Gly Arg Gly Ser Asp Arg Glu Arg Glu Ser Arg Pro
        35                  40                  45


Glu Ala Ala Gly Leu Leu Trp Asp Arg Ala Ala Ala Gly Glu Ala Glu
    50                  55                  60


Lys Gly Asn Arg Gly Glu Pro Pro Ala Trp Ile Arg Ala Gln Gln Gln
65                  70                  75                  80


Pro Arg Pro Pro Pro Ala Gly Gln Ala Pro Gly Thr Ala Ala Gly Gly
                85                  90                  95


Ala Gln Asp Pro Arg Leu Arg Pro Gly Arg Ser Arg Gly Arg Val Arg
            100                 105                 110


Leu Pro Val Lys Pro Pro Glu Ala Ser Gly Arg Gln Pro Arg Gly Pro
        115                 120                 125


Ser Asp Cys Ile Pro Arg Phe Pro Ser Ala Ser Ala Thr His Lys Ala
    130                 135                 140


Val Pro Lys Gly Thr Gly Pro Pro Ala Glu Asp Gly Asp Gly Leu Gly
145                 150                 155                 160


Ala Pro Gly Pro Arg Ala Arg Arg Arg Leu Leu Gly Val Ala Ala
            165                 170                 175


Glu Gly Ser Gly Pro Arg Gly Lys Arg Arg Gly Thr Val Ser Asp Glu
            180                 185                 190
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Ala Arg Gly Ser Pro Gly Pro Arg Leu Leu Gly Asp Arg Pro Ala Leu
        195             200             205

Ser Gly Asp Ala Leu Ser Ala Pro Arg Val Val Pro Cys Gly Ala Leu
        210             215             220

Ala Ala Arg Pro Ser Pro His Pro Gly Thr Pro Leu Arg Ser Cys Ser
225             230             235                 240

Cys Cys Trp Leu Arg Cys Trp Arg Arg Gly Arg Gly Pro Ser Gly Glu
            245             250             255

Tyr Cys His Gly Trp Leu Asp Ala Gln Gly Val Trp Arg Ile Gly Phe
            260             265             270

Gln Cys Pro Glu Arg Phe Asp Gly Gly Asp Ala Thr Ile Cys Cys Gly
        275             280             285

Ser Cys Ala Leu Arg Tyr Cys Cys Ser Ser Ala Glu Ala Arg Leu Asp
    290             295             300

Gln Gly Gly Cys Asp Asn Asp Arg Gln Gln Gly Ala Gly Glu Pro Gly
305             310             315             320

Arg Ala Asp Lys Asp Gly Pro Arg Arg Leu Gly Arg Ala Ser Cys Leu
            325             330             335

Arg Gly Thr Gln Gly Asp Gly Glu Gly Ala Pro Pro Pro Val Arg Ala
            340             345             350

Trp Gln Arg Cys Ser Pro Glu Gly Ser Pro Lys Gly Arg Gln Leu Leu
        355             360             365

Arg Ala Phe Pro Gly Leu Leu Pro Arg Ala Arg Arg Arg Gly Phe Pro
    370             375             380

Ser Ser Pro Arg Gly Gly Pro Ser Pro Leu Gln Arg Pro Ala Leu Pro
385             390             395             400

Ile Tyr Val Pro Phe Leu Ile Val Gly Ser Val Phe Val Ala Phe Ile
            405             410             415

Ile Leu Gly Ser Leu Val Ala Ala Cys Cys Cys Arg Cys Leu Arg Pro
        420             425             430

Lys Gln Asp Pro Gln Gln Ser Arg Ala Pro Gly Gly Asn Arg Leu Met
        435             440             445

Glu Thr Ile Pro Met Ile Pro Ser Ala Ser Thr Ser Arg Gly Ser Ser
    450             455             460

Ser Arg Gln Ser Ser Thr Ala Ala Ser Ser Ser Ser Ala Asn Ser
465             470             475             480

Gly Ala Arg Ala Pro Pro Thr Arg Ser Gln Thr Asn Cys Cys Leu Pro
            485             490             495

Glu Gly Thr Met Asn Asn Val Tyr Val Asn Met Pro Thr Asn Phe Ser
            500             505             510
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64

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Val Leu Asn Cys Gln Gln Ala Thr Gln Ile Val Pro His Gln Gly Gln
        515                 520                 525

Tyr Leu His Pro Pro Tyr Val Gly Tyr Thr Val Gln His Asp Ser Val
        530                 535                 540

Pro Met Thr Ala Val Pro Pro Phe Met Asp Gly Leu Gln Pro Gly Tyr
545                 550                 555                 560

Arg Gln Ile Gln Ser Pro Phe Pro His Thr Asn Ser Glu Gln Lys Met
                565                 570                 575

Tyr Pro Ala Val Thr Val
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<210> 45
<211> 3857
<212> DNA
<213> Homo sapiens

<400> 45
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65

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<210> 46
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<213> Homo sapiens

<400> 46

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Leu Cys Val Tyr Glu Pro Asp Arg Asn Ala Leu Arg Arg Lys Glu Arg
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Glu Arg Arg Asn Gln Glu Thr Gln Gln Asp Asp Gly Thr Phe Asn Ser
         35                  40                  45

Ser Tyr Ser Leu Phe Ser Glu Pro Tyr Lys Thr Asn Lys Gly Asp Glu
      50                  55                  60

Leu Ser Asn Arg Ile Gln Asn Thr Leu Gly Asn Tyr Asp Glu Met Lys
 65                  70                  75                  80

Asp Phe Leu Thr Asp Arg Thr Asn Gln Ser His Leu Val Gly Val Pro
                85                  90                  95

Lys Pro Gly Val Pro Gln Thr Pro Val Asn Lys Ile Asp Glu His Phe
            100                 105                 110

Val Ala Asp Ser Arg Ala Gln Asn Gln Pro Ser Ser Ile Cys Ser Thr
         115                 120                 125

Thr Thr Ser Thr Pro Ala Ala Val Pro Val Gln Gln Ser Lys Arg Gly
      130                 135                 140
```
```
                                    66
```

Thr Met Gly Trp Gln Lys Ala Gly His Pro Pro Ser Asp Gly Gln Gln
145   150   155   160

Arg Ala Thr Gln Gln Gly Ser Leu Arg Thr Leu Leu Gly Asp Gly Val
                165   170   175

Gly Arg Gln Gln Pro Arg Ala Lys Gln Val Cys Asn Val Glu Val Gly
                180   185   190

Leu Gln Thr Gln Glu Arg Pro Pro Ala Met Ala Ala Lys His Ser Ser
        195   200   205

Ser Gly His Cys Val Gln Asn Phe Pro Pro Ser Leu Ala Ser Lys Pro
    210   215   220

Ser Leu Val Gln Gln Lys Pro Thr Ala Tyr Val Arg Pro Met Asp Gly
225   230   235   240

Gln Asp Gln Ala Pro Asp Glu Ser Pro Lys Leu Lys Ser Ser Ser Glu
                245   250   255

Thr Ser Val His Cys Thr Ser Tyr Arg Gly Val Pro Ala Ser Lys Pro
                260   265   270

Glu Pro Ala Arg Ala Lys Ala Lys Leu Ser Lys Phe Ser Ile Pro Lys
            275   280   285

Gln Gly Glu Glu Ser Arg Ser Gly Glu Thr Asn Ser Cys Val Glu Glu
    290   295   300

Ile Ile Arg Glu Met Thr Trp Leu Pro Pro Leu Ser Ala Ile Gln Ala
305   310   315   320

Pro Gly Lys Val Glu Pro Thr Lys Phe Pro Phe Pro Asn Lys Asp Ser
                325   330   335

Gln Leu Val Ser Ser Gly His Asn Asn Pro Lys Lys Gly Asp Ala Glu
            340   345   350

Pro Glu Ser Pro Asp Asn Gly Thr Ser Asn Thr Ser Met Leu Glu Asp
        355   360   365

Asp Leu Lys Leu Ser Ser Asp Glu Glu Glu Asn Glu Gln Gln Ala Ala
    370   375   380

Gln Arg Thr Ala Leu Arg Ala Leu Ser Asp Ser Ala Val Val Gln Gln
385   390   395   400

Pro Asn Cys Arg Thr Ser Val Pro Ser Ser Lys Gly Ser Ser Ser Ser
            405   410   415

Ser Ser Ser Gly Thr Ser Ser Ser Ser Ser Asp Ser Glu Ser Ser Ser
        420   425   430

Gly Ser Asp Ser Glu Thr Glu Ser Ser Ser Ser Glu Ser Glu Gly Ser
    435   440   445

Lys Pro Pro His Phe Ser Ser Pro Glu Ala Glu Pro Ala Ser Ser Asn
    450   455   460

Lys Trp Gln Leu Asp Lys Trp Leu Asn Lys Val Asn Pro His Lys Pro
465   470   475   480

Pro Ile Leu Ile Gln Asn Glu Ser His Gly Ser Glu Ser Asn Gln Tyr
            485   490   495

Tyr Asn Pro Val Lys Glu Asp Val Gln Asp Cys Gly Lys Val Pro Asp
        500   505   510

Val Cys Gln Pro Ser Leu Arg Glu Lys Glu Ile Lys Ser Thr Cys Lys
        515   520   525

Glu Glu Gln Arg Pro Arg Thr Ala Asn Lys Ala Pro Gly Ser Lys Gly
    530   535   540

Val Lys Gln Lys Ser Pro Pro Ala Ala Val Ala Val Ala Val Ser Ala
545   550   555   560

Ala Ala Pro Pro Pro Ala Val Pro Cys Ala Pro Ala Glu Asn Ala Pro
            565   570   575

Ala Pro Ala Arg Arg Ser Ala Gly Lys Lys Pro Thr Arg Arg Thr Glu
        580   585   590

Arg Thr Ser Ala Gly Asp Gly Ala Asn Cys His Arg Pro Glu Glu Pro
        595   600   605

Ala Ala Ala Asp Ala Leu Gly Thr Ser Val Val Val Pro Pro Glu Pro
    610   615   620

Thr Lys Thr Arg Pro Cys Gly Asn Asn Arg Ala Ser His Arg Lys Glu
625   630   635   640

Leu Arg Ser Ser Val Thr Cys Glu Lys Arg Arg Thr Arg Gly Leu Ser
            645   650   655

Arg Ile Val Pro Lys Ser Lys Glu Phe Ile Glu Thr Glu Ser Ser Ser
        660   665   670

Ser Ser Ser Ser Ser Asp Ser Asp Leu Glu Ser Glu Gln Glu Glu Tyr
        675   680   685

Pro Leu Ser Lys Ala Gln Thr Val Ala Ala Ser Ala Ser Ser Gly Asn
    690   695   700

Asp Gln Arg Leu Lys Glu Ala Ala Ala Asn Gly Gly Ser Gly Pro Arg
705   710   715   720

Ala Pro Val Gly Ser Ile Asn Ala Arg Thr Thr Ser Asp Ile Ala Lys
            725   730   735

Glu Leu Glu Glu Gln Phe Tyr Thr Leu Val Pro Phe Gly Arg Asn Glu
            740   745   750

Leu Leu Ser Pro Leu Lys Asp Ser Asp Glu Ile Arg Ser Leu Trp Val
        755   760   765

Lys Ile Asp Leu Thr Leu Leu Ser Arg Ile Pro Glu His Leu Pro Gln
    770   775   780

68

```
Glu Pro Gly Val Leu Ser Ala Pro Ala Thr Lys Asp Ser Glu Ser Ala
785             790             795             800

Pro Pro Ser His Thr Ser Asp Thr Pro Ala Glu Lys Ala Leu Pro Lys
            805             810             815

Ser Lys Arg Lys Arg Lys Cys Asp Asn Glu Asp Asp Tyr Arg Glu Ile
            820             825             830

Lys Lys Ser Gln Gly Glu Lys Asp Ser Ser Ser Arg Leu Ala Thr Ser
            835             840             845

Thr Ser Asn Thr Leu Ser Ala Asn His Cys Asn Met Asn Ile Asn Ser
    850             855             860

Val Ala Ile Pro Ile Asn Lys Asn Glu Lys Met Leu Arg Ser Pro Ile
865             870             875             880

Ser Pro Leu Ser Asp Ala Ser Lys His Lys Tyr Thr Ser Glu Asp Leu
            885             890             895

Thr Ser Ser Ser Arg Pro Asn Gly Asn Ser Leu Phe Thr Ser Ala Ser
            900             905             910

Ser Ser Lys Lys Pro Lys Ala Asp Ser Gln Leu Gln Pro His Gly Gly
            915             920             925

Asp Leu Thr Lys Ala Ala His Asn Asn Ser Glu Asn Ile Pro Leu His
    930             935             940

Lys Ser Arg Pro Gln Thr Lys Pro Trp Ser Pro Gly Ser Asn Gly His
945             950             955             960

Arg Asp Cys Lys Arg Gln Lys Leu Val Phe Asp Asp Met Pro Arg Ser
            965             970             975

Ala Asp Tyr Phe Met Gln Glu Ala Lys Arg Met Lys His Lys Ala Asp
            980             985             990

Ala Met Val Glu Lys Phe Gly Lys Ala Leu Asn Tyr Ala Glu Ala Ala
        995             1000            1005

Leu Ser Phe Ile Glu Cys Gly Asn Ala Met Glu Gln Gly Pro Met Glu
    1010            1015            1020

Ser Lys Ser Pro Tyr Tyr Leu Met Tyr Ser Glu Thr Val Glu Leu Ile
1025            1030            1035            1040

Arg Tyr Ala Met Arg Leu Lys Thr His Ser Gly Pro Asn Ala Thr Pro
            1045            1050            1055

Glu Asp Lys Gln Leu Ala Ala Leu Cys Tyr Arg Cys Leu Ala Leu Leu
        1060            1065            1070

Tyr Trp Arg Met Phe Arg Leu Lys Arg Asp His Ala Val Lys Tyr Ser
        1075            1080            1085

Lys Ala Leu Ile Asp Tyr Phe Lys Asn Ser Ser Lys Ala Ala Gln Ala
    1090            1095            1100
```

```
Pro Ser Pro Trp Gly Ala Ser Gly Lys Ser Thr Gly Thr Pro Ser Pro
1105                1110               1115                1120

Ile Ser Pro Asn Pro Phe Pro Gly Ser Ser Val Gly Ser Gln Gly Ser
                    1125               1130               1135

Leu Ser Asn Ala Ser Ala Leu Ser Pro Ser Thr Ile Val Ser Ile Pro
               1140               1145               1150

Gln Arg Ile His Gln Met Ala Ala Asn His Val Ser Ile Thr Asn Ser
           1155               1160               1165

Ile Leu His Ser Tyr Asp Tyr Trp Glu Met Ala Asp Asn Leu Ala Lys
        1170               1175               1180

Glu Asn Arg Glu Phe Phe Asn Asp Leu Asp Leu Leu Met Gly Pro Val
1185               1190               1195               1200

Thr Leu His Ser Ser Met Glu His Leu Val Gln Tyr Ser Gln Gln Gly
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Leu His Trp Leu Arg Asn Ser Ala His Leu Ser
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70

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tc                                                                4862
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Met Thr Arg Lys Arg Thr Tyr Trp Val Pro Asn Ser Ser Gly Gly Leu
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Val Asn Arg Gly Ile Asp Ile Gly Asp Asp Met Val Ser Gly Leu Ile
            20   25   30

Tyr Lys Thr Tyr Thr Leu Gln Asp Gly Pro Trp Ser Gln Gln Glu Arg
        35   40   45

Asn Pro Glu Ala Pro Gly Arg Ala Ala Val Pro Pro Trp Gly Lys Tyr
    50   55   60

Asp Ala Ala Leu Arg Thr Met Ile Pro Phe Arg Pro Lys Pro Arg Phe
65   70   75   80

Pro Ala Pro Gln Pro Leu Asp Asn Ala Gly Leu Phe Ser Tyr Leu Thr
            85   90   95

Val Ser Trp Leu Thr Pro Leu Met Ile Gln Ser Leu Arg Ser Arg Leu
            100   105   110

Asp Glu Asn Thr Ile Pro Pro Leu Ser Val His Asp Ala Ser Asp Lys
        115   120   125

Asn Val Gln Arg Leu His Arg Leu Trp Glu Glu Glu Val Ser Arg Arg
    130   135   140

Gly Ile Glu Lys Ala Ser Val Leu Leu Val Met Leu Arg Phe Gln Arg
145   150   155   160

Thr Arg Leu Ile Phe Asp Ala Leu Leu Gly Ile Cys Phe Cys Ile Ala
            165   170   175

Ser Val Leu Gly Pro Ile Leu Ile Ile Pro Lys Ile Leu Glu Tyr Ser
            180   185   190

Glu Glu Gln Leu Gly Asn Val Val His Gly Val Gly Leu Cys Phe Ala
        195   200   205

Leu Phe Leu Ser Glu Cys Val Lys Ser Leu Ser Phe Ser Ser Ser Trp
    210   215   220

Ile Ile Asn Gln Arg Thr Ala Ile Arg Phe Arg Ala Ala Val Ser Ser
225   230   235   240

Phe Ala Phe Glu Lys Leu Ile Gln Phe Lys Ser Val Ile His Ile Thr
            245   250   255

Ser Gly Glu Ala Ile Ser Phe Phe Thr Gly Asp Val Asn Tyr Leu Phe
            260   265   270

Glu Gly Val Cys Tyr Gly Pro Leu Val Leu Ile Thr Cys Ala Ser Leu
        275   280   285

Val Ile Cys Ser Ile Ser Ser Tyr Phe Ile Ile Gly Tyr Thr Ala Phe
    290   295   300

Ile Ala Ile Leu Cys Tyr Leu Leu Val Phe Pro Leu Ala Val Phe Met
305   310   315   320

72

```
Thr Arg Met Ala Val Lys Ala Gln His His Thr Ser Glu Val Ser Asp
             325                 330                 335

Gln Arg Ile Arg Val Thr Ser Glu Val Leu Thr Cys Ile Lys Leu Ile
             340                 345                 350

Lys Met Tyr Thr Trp Glu Lys Pro Phe Ala Lys Ile Ile Glu Asp Leu
         355                 360                 365

Arg Arg Lys Glu Arg Lys Leu Leu Glu Lys Cys Gly Leu Val Gln Ser
     370                 375                 380

Leu Thr Ser Ile Thr Leu Phe Ile Ile Pro Thr Val Ala Thr Ala Val
385                 390                 395                 400

Trp Val Leu Ile His Thr Ser Leu Lys Leu Lys Leu Thr Ala Ser Met
             405                 410                 415

Ala Phe Ser Met Leu Ala Ser Leu Asn Leu Leu Arg Leu Ser Val Phe
         420                 425                 430

Phe Val Pro Ile Ala Val Lys Gly Leu Thr Asn Ser Lys Ser Ala Val
         435                 440                 445

Met Arg Phe Lys Lys Phe Phe Leu Gln Glu Ser Pro Val Phe Tyr Val
     450                 455                 460

Gln Thr Leu Gln Asp Pro Ser Lys Ala Leu Val Phe Glu Glu Ala Thr
465                 470                 475                 480

Leu Ser Trp Gln Gln Thr Cys Pro Gly Ile Val Asn Gly Ala Leu Glu
             485                 490                 495

Leu Glu Arg Asn Gly His Ala Ser Glu Gly Met Thr Arg Pro Arg Asp
             500                 505                 510

Ala Leu Gly Pro Glu Glu Glu Gly Asn Ser Leu Gly Pro Glu Leu His
         515                 520                 525

Lys Ile Asn Leu Val Val Ser Lys Gly Met Met Leu Gly Val Cys Gly
     530                 535                 540

Asn Thr Gly Ser Gly Lys Ser Ser Leu Leu Ser Ala Ile Leu Glu Glu
545                 550                 555                 560

Met His Leu Leu Glu Gly Ser Val Gly Val Gln Gly Ser Leu Ala Tyr
             565                 570                 575

Val Pro Gln Gln Ala Trp Ile Val Ser Gly Asn Ile Arg Glu Asn Ile
         580                 585                 590

Leu Met Gly Gly Ala Tyr Asp Lys Ala Arg Tyr Leu Gln Val Leu His
         595                 600                 605

Cys Cys Ser Leu Asn Arg Asp Leu Glu Leu Leu Pro Phe Gly Asp Met
     610                 615                 620

Thr Glu Ile Gly Glu Arg Gly Leu Asn Leu Ser Gly Gly Gln Lys Gln
625                 630                 635                 640
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73

Arg Ile Ser Leu Ala Arg Ala Val Tyr Ser Asp Arg Gln Ile Tyr Leu
            645   650   655

Leu Asp Asp Pro Leu Ser Ala Val Asp Ala His Val Gly Lys His Ile
            660   665   670

Phe Glu Glu Cys Ile Lys Lys Thr Leu Arg Gly Lys Thr Val Val Leu
        675   680   685

Val Thr His Gln Leu Gln Tyr Leu Glu Phe Cys Gly Gln Ile Ile Leu
    690   695   700

Leu Glu Asn Gly Lys Ile Cys Glu Asn Gly Thr His Ser Glu Leu Met
705   710   715   720

Gln Lys Lys Gly Lys Tyr Ala Gln Leu Ile Gln Lys Met His Lys Glu
            725   730   735

Ala Thr Ser Asp Met Leu Gln Asp Thr Ala Lys Ile Ala Glu Lys Pro
            740   745   750

Lys Val Glu Ser Gln Ala Leu Ala Thr Ser Leu Glu Glu Ser Leu Asn
        755   760   765

Gly Asn Ala Val Pro Glu His Gln Leu Thr Gln Glu Glu Glu Met Glu
    770   775   780

Glu Gly Ser Leu Ser Trp Arg Val Tyr His His Tyr Ile Gln Ala Ala
785   790   795   800

Gly Gly Tyr Met Val Ser Cys Ile Ile Phe Phe Phe Val Val Leu Ile
            805   810   815

Val Phe Leu Thr Ile Phe Ser Phe Trp Trp Leu Ser Tyr Trp Leu Glu
            820   825   830

Gln Gly Ser Gly Thr Asn Ser Ser Arg Glu Ser Asn Gly Thr Met Ala
        835   840   845

Asp Leu Gly Asn Ile Ala Asp Asn Pro Gln Leu Ser Phe Tyr Gln Leu
    850   855   860

Val Tyr Gly Leu Asn Ala Leu Leu Leu Ile Cys Val Gly Val Cys Ser
865   870   875   880

Ser Gly Ile Phe Thr Lys Val Thr Arg Lys Ala Ser Thr Ala Leu His
            885   890   895

Asn Lys Leu Phe Asn Lys Val Phe Arg Cys Pro Met Ser Phe Phe Asp
        900   905   910

Thr Ile Pro Ile Gly Arg Leu Leu Asn Cys Phe Ala Gly Asp Leu Glu
        915   920   925

Gln Leu Asp Gln Leu Leu Pro Ile Phe Ser Glu Gln Phe Leu Val Leu
    930   935   940

Ser Leu Met Val Ile Ala Val Leu Leu Ile Val Ser Val Leu Ser Pro
945   950   955   960

74

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Tyr Ile Leu Leu Met Gly Ala Ile Ile Met Val Ile Cys Phe Ile Tyr
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Tyr Met Met Phe Lys Lys Ala Ile Gly Val Phe Lys Arg Leu Glu Asn
              980                   985                   990

Tyr Ser Arg Ser Pro Leu Phe Ser His Ile Leu Asn Ser Leu Gln Gly
             995                  1000                  1005

Leu Ser Ser Ile His Val Tyr Gly Lys Thr Glu Asp Phe Ile Ser Gln
     1010                  1015                  1020

Phe Lys Arg Leu Thr Asp Ala Gln Asn Asn Tyr Leu Leu Leu Phe Leu
1025                  1030                  1035                  1040

Ser Ser Thr Arg Trp Met Ala Leu Arg Leu Glu Ile Met Thr Asn Leu
             1045                  1050                  1055

Val Thr Leu Ala Val Ala Leu Phe Val Ala Phe Gly Ile Ser Ser Thr
             1060                  1065                  1070

Pro Tyr Ser Phe Lys Val Met Ala Val Asn Ile Val Leu Gln Leu Ala
        1075                  1080                  1085

Ser Ser Phe Gln Ala Thr Ala Arg Ile Gly Leu Glu Thr Glu Ala Gln
     1090                  1095                  1100

Phe Thr Ala Val Glu Arg Ile Leu Gln Tyr Met Lys Met Cys Val Ser
1105                  1110                  1115                  1120

Glu Ala Pro Leu His Met Glu Gly Thr Ser Cys Pro Gln Gly Trp Pro
             1125                  1130                  1135

Gln His Gly Glu Ile Ile Phe Gln Asp Tyr His Met Lys Tyr Arg Asp
             1140                  1145                  1150

Asn Thr Pro Thr Val Leu His Gly Ile Asn Leu Thr Ile Arg Gly His
        1155                  1160                  1165

Glu Val Val Gly Ile Val Gly Arg Thr Gly Ser Gly Lys Ser Ser Leu
     1170                  1175                  1180

Gly Met Ala Leu Phe Arg Leu Val Glu Pro Met Ala Gly Arg Ile Leu
1185                  1190                  1195                  1200

Ile Asp Gly Val Asp Ile Cys Ser Ile Gly Leu Glu Asp Leu Arg Ser
             1205                  1210                  1215

Lys Leu Ser Val Ile Pro Gln Asp Pro Val Leu Leu Ser Gly Thr Ile
        1220                  1225                  1230

Arg Phe Asn Leu Asp Pro Phe Asp Arg His Thr Asp Gln Gln Ile Trp
        1235                  1240                  1245

Asp Ala Leu Glu Arg Thr Phe Leu Thr Lys Ala Ile Ser Lys Phe Pro
     1250                  1255                  1260

Lys Lys Leu His Thr Asp Val Val Glu Asn Gly Gly Asn Phe Ser Val
1265                  1270                  1275                  1280
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75

Gly Glu Arg Gln Leu Leu Cys Ile Ala Arg Ala Val Leu Arg Asn Ser
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Lys Ile Ile Leu Ile Asp Glu Ala Thr Ala Ser Ile Asp Met Glu Thr
            1300   1305   1310

Asp Thr Leu Ile Gln Arg Thr Ile Arg Glu Ala Phe Gln Gly Cys Thr
         1315   1320   1325

Val Leu Val Ile Ala His Arg Val Thr Thr Val Leu Asn Cys Asp His
      1330   1335   1340

Ile Leu Val Met Gly Asn Gly Lys Val Val Glu Phe Asp Arg Pro Glu
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Val Leu Arg Lys Lys Pro Gly Ser Leu Phe Ala Ala Leu Met Ala Thr
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Ala Thr Ser Ser Leu Arg
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<211> 2682
<212> DNA
<213> Homo sapiens

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76

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<210> 50
<211> 240
<212> PRT
<213> Homo sapiens

<400> 50
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Met Lys Asp Val Gly Pro Glu Ser Cys Gly Gln Pro Thr Pro Cys Trp
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Pro Ser Pro Ala Leu Glu Ser Val Leu Gly Lys Ala Ser Gln His Leu
             20                  25                  30


Gly Leu Glu Ser Gly Gln Pro Leu Tyr Leu Leu Glu Leu Asn Trp Gly
         35                  40                  45


Gly Thr Glu Cys Ala Leu Ser Ser Thr Gly Arg Thr Ala Ala Cys Phe
     50                  55                  60


Leu Pro Ile Ser Leu Leu Pro Thr Ser Pro Ala Ala Trp Leu Gly Pro
 65                  70                  75                  80


Glu Ala Leu Cys Leu Pro Gly Arg Pro Gly Thr Thr Gly Leu Arg Asp
                 85                  90                  95


Thr Gly Gly Pro Leu Leu Leu Pro Pro Pro Thr Leu Leu Gln Asp Thr
            100                 105                 110


Thr Arg Trp Cys Trp Met Leu Val Leu Trp Pro Ala Lys Val His Gly
            115                 120                 125


Asp Ser Pro His Gly Ile Leu Arg Asp Gln Ala Ala Gly Ile Gly Lys
        130                 135                 140


Glu Phe His Pro Asp His Cys Pro Ser Gln Val Pro Arg Arg Pro His
145                 150                 155                 160


His Thr Pro Phe Gln Gly Gln Gly Ser Ser Lys Pro Arg Ala Arg Ile
                165                 170                 175


Leu Cys Cys Cys Leu Val Glu Ser Leu Pro Pro Cys Val Gly Ser Val
                180                 185                 190


Gly Gln Ala Glu Cys Ile Gly Asp Arg Ala Val Ser Met Gly Leu Gly
            195                 200                 205


Val Cys Glu Leu Arg Pro Arg Cys Ala Val Trp Arg Arg Val Leu Ser
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Gly Lys Arg Cys Gly Phe Lys Val Cys Val Cys Arg Gly Trp Val Cys
225   230   235   240

<210> 51
<211> 1194
<212> DNA
<213> Homo sapiens

<400> 51
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tcgtacacca caatgtgcat caaggagacg tgccgattga ttcctgcagt cccgtccatt 240
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gtctttgacc ccttgaggtt ctctcaggag aattctgatc agagacaccc ctatgcctac 420
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aaggtaacca ttgccttgat tctgctccac ttcagagtga ctccagaccc caccaggcct 540
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gacttttcc tatacatttt atatgtagaa atgtagcaat gtatttgtat agatgtgatc 1140
attcctatat tgttattgat ttttttcact taataaaaat tcaccttatt cctt 1194

<210> 52
<211> 146
<212> PRT
<213> Homo sapiens

<400> 52
Met Ser Tyr Thr Thr Met Cys Ile Lys Glu Thr Cys Arg Leu Ile Pro
  1   5   10   15

Ala Val Pro Ser Ile Ser Arg Asp Leu Ser Lys Pro Leu Thr Phe Pro
             20   25   30

Asp Gly Cys Thr Leu Pro Ala Gly Ile Thr Val Val Leu Ser Ile Trp
          35   40   45

Gly Leu His His Asn Pro Ala Val Trp Lys Asn Pro Lys Val Phe Asp
       50   55   60

Pro Leu Arg Phe Ser Gln Glu Asn Ser Asp Gln Arg His Pro Tyr Ala
 65   70   75   80

Tyr Leu Pro Phe Ser Ala Gly Ser Arg Asn Cys Ile Gly Gln Glu Phe
                85   90   95

Ala Met Ile Glu Leu Lys Val Thr Ile Ala Leu Ile Leu Leu His Phe
             100   105   110

Arg Val Thr Pro Asp Pro Thr Arg Pro Leu Thr Phe Pro Asn His Phe
        115   120   125

Ile Leu Lys Pro Lys Asn Gly Met Tyr Leu His Leu Lys Lys Leu Ser
        130   135   140

Glu Cys
145

<210> 53
<211> 1533
<212> DNA
<213> Homo sapiens

<400> 53
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<210> 54
<211> 510
<212> PRT
<213> Homo sapiens

<400> 54
Met Pro Leu Ser Leu Gly Ala Glu Met Trp Gly Pro Glu Ala Trp Leu
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Leu Leu Leu Leu Leu Leu Ala Ser Phe Thr Gly Arg Cys Pro Ala Gly
              20   25   30

Glu Leu Glu Thr Ser Asp Val Val Thr Val Val Leu Gly Gln Asp Ala
          35   40   45

Lys Leu Pro Cys Phe Tyr Arg Gly Asp Ser Gly Glu Gln Val Gly Gln
     50   55   60

79

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Val Ala Trp Ala Arg Val Asp Ala Gly Glu Gly Ala Gln Glu Leu Ala
65              70              75              80

Leu Leu His Ser Lys Tyr Gly Leu His Val Ser Pro Ala Tyr Glu Gly
            85              90              95

Arg Val Glu Gln Pro Pro Pro Arg Asn Pro Leu Asp Gly Ser Val
        100         105         110

Leu Leu Arg Asn Ala Val Gln Ala Asp Glu Gly Glu Tyr Glu Cys Arg
        115         120         125

Val Ser Thr Phe Pro Ala Gly Ser Phe Gln Ala Arg Leu Arg Leu Arg
    130         135         140

Val Leu Val Pro Pro Leu Pro Ser Leu Asn Pro Gly Pro Ala Leu Glu
145         150         155         160

Glu Gly Gln Gly Leu Thr Leu Ala Ala Ser Cys Thr Ala Glu Gly Ser
            165         170         175

Pro Ala Pro Ser Val Thr Trp Asp Thr Glu Val Lys Gly Thr Thr Ser
        180         185         190

Ser Arg Ser Phe Lys His Ser Arg Ser Ala Ala Val Thr Ser Glu Phe
        195         200         205

His Leu Val Pro Ser Arg Ser Met Asn Gly Gln Pro Leu Thr Cys Val
    210         215         220

Val Ser His Pro Gly Leu Leu Gln Asp Gln Arg Ile Thr His Ile Leu
225         230         235         240

His Val Ser Phe Leu Ala Glu Ala Ser Val Arg Gly Leu Glu Asp Gln
        245         250         255

Asn Leu Trp His Ile Gly Arg Glu Gly Ala Met Leu Lys Cys Leu Ser
        260         265         270

Glu Gly Gln Pro Pro Pro Ser Tyr Asn Trp Thr Arg Leu Asp Gly Pro
    275         280         285

Leu Pro Ser Gly Val Arg Val Asp Gly Asp Thr Leu Gly Phe Pro Pro
290         295         300

Leu Thr Thr Glu His Ser Gly Ile Tyr Val Cys His Val Ser Asn Glu
305         310         315         320

Phe Ser Ser Arg Asp Ser Gln Val Thr Val Asp Val Leu Asp Pro Gln
        325         330         335

Glu Asp Ser Gly Lys Gln Val Asp Leu Val Ser Ala Ser Val Val Val
        340         345         350

Val Gly Val Ile Ala Ala Leu Leu Phe Cys Leu Leu Val Val Val Val
    355         360         365

Val Leu Met Ser Arg Tyr His Arg Arg Lys Ala Gln Gln Met Thr Gln
370         375         380
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80

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Lys Tyr Glu Glu Glu Leu Thr Leu Thr Arg Glu Asn Ser Ile Arg Arg
385             390             395             400

Leu His Ser His His Thr Asp Pro Arg Ser Gln Pro Glu Glu Ser Val
            405             410             415

Gly Leu Arg Ala Glu Gly His Pro Asp Ser Leu Lys Asp Asn Ser Ser
            420             425             430

Cys Ser Val Met Ser Glu Glu Pro Glu Gly Arg Ser Tyr Ser Thr Leu
        435             440             445

Thr Thr Val Arg Glu Ile Glu Thr Gln Thr Glu Leu Leu Ser Pro Gly
    450             455             460

Ser Gly Arg Ala Glu Glu Glu Glu Asp Gln Asp Glu Gly Ile Lys Gln
465             470             475             480

Ala Met Asn His Phe Val Gln Glu Asn Gly Thr Leu Arg Ala Lys Pro
            485             490             495

Thr Gly Asn Gly Ile Tyr Ile Asn Gly Arg Gly His Leu Val
            500             505             510


<210> 55
<211> 2642
<212> DNA
<213> Homo sapiens

<400> 55
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81

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<210> 56
<211> 550
<212> PRT
<213> Homo sapiens

<400> 56
Met Thr Ala Leu Asp Leu Phe Leu Thr Asn Gln Phe Ser Glu Ala Leu
  1               5                  10                  15

Ser Tyr Leu Lys Pro Arg Thr Lys Glu Ser Met Tyr His Ser Leu Thr
              20                  25                  30

Tyr Ala Thr Ile Leu Glu Met Gln Ala Met Met Thr Phe Asp Pro Gln
          35                  40                  45

Asp Ile Leu Leu Ala Gly Asn Met Met Lys Glu Ala Gln Met Leu Cys
      50                  55                  60

Gln Arg His Arg Arg Lys Ser Ser Val Thr Asp Ser Phe Ser Ser Leu
 65                  70                  75                  80

Val Asn Arg Pro Thr Leu Gly Gln Phe Thr Glu Glu Glu Ile His Ala
                  85                  90                  95

Glu Val Cys Tyr Ala Glu Cys Leu Leu Gln Arg Ala Ala Leu Thr Phe
              100                 105                 110

Leu Gln Asp Glu Asn Met Val Ser Phe Ile Lys Gly Gly Ile Lys Val
              115                 120                 125

Arg Asn Ser Tyr Gln Thr Tyr Lys Glu Leu Asp Ser Leu Val Gln Ser
          130                 135                 140

Ser Gln Tyr Cys Lys Gly Glu Asn His Pro His Phe Glu Gly Gly Val
145                 150                 155                 160

Lys Leu Gly Val Gly Ala Phe Asn Leu Thr Leu Ser Met Leu Pro Thr
              165                 170                 175

Arg Ile Leu Arg Leu Leu Glu Phe Val Gly Phe Ser Gly Asn Lys Asp
              180                 185                 190

Tyr Gly Leu Leu Gln Leu Glu Glu Gly Ala Ser Gly His Ser Phe Arg
          195                 200                 205
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82

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Ser Val Leu Cys Val Met Leu Leu Leu Cys Tyr His Thr Phe Leu Thr
    210                 215                 220

Phe Val Leu Gly Thr Gly Asn Val Asn Ile Glu Glu Ala Glu Lys Leu
225                 230                 235                 240

Leu Lys Pro Tyr Leu Asn Arg Tyr Pro Lys Gly Ala Ile Phe Leu Phe
                245                 250                 255

Phe Ala Gly Arg Ile Glu Val Ile Lys Gly Asn Ile Asp Ala Ala Ile
                260                 265                 270

Arg Arg Phe Glu Glu Cys Cys Glu Ala Gln Gln His Trp Lys Gln Phe
            275                 280                 285

His His Met Cys Tyr Trp Glu Leu Met Trp Cys Phe Thr Tyr Lys Gly
    290                 295                 300

Gln Trp Lys Met Ser Tyr Phe Tyr Ala Asp Leu Leu Ser Lys Glu Asn
305                 310                 315                 320

Cys Trp Ser Lys Ala Thr Tyr Ile Tyr Met Lys Ala Ala Tyr Leu Ser
                325                 330                 335

Met Phe Gly Lys Glu Asp His Lys Pro Phe Gly Asp Asp Glu Val Glu
            340                 345                 350

Leu Phe Arg Ala Val Pro Gly Leu Lys Leu Lys Ile Ala Gly Lys Ser
            355                 360                 365

Leu Pro Thr Glu Lys Phe Ala Ile Arg Lys Ser Arg Arg Tyr Phe Ser
    370                 375                 380

Ser Asn Pro Ile Ser Leu Pro Val Pro Ala Leu Glu Met Met Tyr Ile
385                 390                 395                 400

Trp Asn Gly Tyr Ala Val Ile Gly Lys Gln Pro Lys Leu Thr Asp Gly
                405                 410                 415

Ile Leu Glu Ile Ile Thr Lys Ala Glu Glu Met Leu Glu Lys Gly Pro
            420                 425                 430

Glu Asn Glu Tyr Ser Val Asp Asp Glu Cys Leu Val Lys Leu Leu Lys
            435                 440                 445

Gly Leu Cys Leu Lys Tyr Leu Gly Arg Val Gln Glu Ala Glu Glu Asn
    450                 455                 460

Phe Arg Ser Ile Ser Ala Asn Glu Lys Lys Ile Lys Tyr Asp His Tyr
465                 470                 475                 480

Leu Ile Pro Asn Ala Leu Leu Glu Leu Ala Leu Leu Leu Met Glu Gln
                485                 490                 495

Asp Arg Asn Glu Glu Ala Ile Lys Leu Leu Glu Ser Ala Lys Gln Asn
            500                 505                 510

Tyr Lys Asn Tyr Ser Met Glu Ser Arg Thr His Phe Arg Ile Gln Ala
    515                 520                 525
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Ala Thr Leu Gln Ala Lys Ser Ser Leu Glu Asn Ser Ser Arg Ser Met
    530   535   540

Val Ser Ser Val Ser Leu
545   550

<210> 57
<211> 927
<212> DNA
<213> Homo sapiens

<400> 57
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aatctgaccg aggtgcccac ggacctgccc gcctacgtgc gcaacctctt ccttaccggc 300
aaccagctgg ccagcaacca cttcctttac ctgccgcggg atgtgctggc ccaactgccc 360
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cgcaacctga cacatctaga aagcctccac ctggaggaca atgccctcaa ggtccttcac 480
aatggcaccc tggctgagtt gcaaggtcta ccccacatta gggtttttcct ggacaacaat 540
ccctgggtct gcgactgcca catggcagac atggtgacct ggctcaagga aacagaggta 600
gtgcagggca aagaccggct cacctgtgca tatccggaaa aaatgaggaa tcgggtcctc 660
ttggaactca acagtgctga cctggactgt gacccgattc ttcccccatc cctgcaaacc 720
tcttatgtct tcctgggtat tgtttttagcc ctgataggcg ctatttttcct cctggttttg 780
tatttgaacc gcaagggggat aaaaaagtgg atgcataaca tcagagatgc ctgcagggat 840
cacatggaag ggtatcatta cagatatgaa atcaatgcgg accccagatt aacaaacctc 900
agttctaact cggatgtcct cgagtga 927

<210> 58
<211> 308
<212> PRT
<213> Homo sapiens

<400> 58
Met Pro Gly Gly Cys Ser Arg Gly Pro Ala Ala Gly Asp Gly Arg Leu
  1   5   10   15

Arg Leu Ala Arg Leu Ala Leu Val Leu Leu Gly Trp Val Ser Ser Ser
            20   25   30

Ser Pro Thr Ser Ser Ala Ser Ser Phe Ser Ser Ser Ala Pro Phe Leu
            35   40   45

Ala Ser Ala Val Ser Ala Gln Pro Pro Leu Pro Asp Gln Cys Pro Ala
        50   55   60

Leu Cys Glu Cys Ser Glu Ala Ala Arg Thr Val Lys Cys Val Asn Arg
 65   70   75   80

Asn Leu Thr Glu Val Pro Thr Asp Leu Pro Ala Tyr Val Arg Asn Leu
                85   90   95

Phe Leu Thr Gly Asn Gln Leu Ala Ser Asn His Phe Leu Tyr Leu Pro
            100   105   110

Arg Asp Val Leu Ala Gln Leu Pro Ser Leu Arg His Leu Asp Leu Ser
            115   120   125

84

Asn Asn Ser Leu Val Ser Leu Thr Tyr Val Ser Phe Arg Asn Leu Thr
    130   135   140

His Leu Glu Ser Leu His Leu Glu Asp Asn Ala Leu Lys Val Leu His
145   150   155   160

Asn Gly Thr Leu Ala Glu Leu Gln Gly Leu Pro His Ile Arg Val Phe
            165   170   175

Leu Asp Asn Asn Pro Trp Val Cys Asp Cys His Met Ala Asp Met Val
            180   185   190

Thr Trp Leu Lys Glu Thr Glu Val Val Gln Gly Lys Asp Arg Leu Thr
        195   200   205

Cys Ala Tyr Pro Glu Lys Met Arg Asn Arg Val Leu Leu Glu Leu Asn
    210   215   220

Ser Ala Asp Leu Asp Cys Asp Pro Ile Leu Pro Pro Ser Leu Gln Thr
225   230   235   240

Ser Tyr Val Phe Leu Gly Ile Val Leu Ala Leu Ile Gly Ala Ile Phe
            245   250   255

Leu Leu Val Leu Tyr Leu Asn Arg Lys Gly Ile Lys Lys Trp Met His
        260   265   270

Asn Ile Arg Asp Ala Cys Arg Asp His Met Glu Gly Tyr His Tyr Arg
        275   280   285

Tyr Glu Ile Asn Ala Asp Pro Arg Leu Thr Asn Leu Ser Ser Asn Ser
    290   295   300

Asp Val Leu Glu
305

<210> 59
<211> 1362
<212> DNA
<213> Homo sapiens

<400> 59
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ctgtcactgc tgccattgaa gttttttcca atcatcgtca ttgggatcat tgcattgata 180
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ctggaggggc agttccggga ggagtttgtg tccatcgatc acctcttgcc agatgacaag 540
gtgactgcat acaccactc agtatatgtg agggagggat gtgcctctgg ccacgtggtt 600
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aacatgtcct tgctctcgca gtggccctgg caggccagcc ttcagttcca gggctaccac 720
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cagcctgtgt gcctgcccaa ctctgaagag aacttccccg atggaaaagt gtgctggacg 1020
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ggggggcccc tggtgtgtca agagaggagg ctgtggaagt tagtgggagc gaccagcttt 1260
ggcatcggct gcgcagaggt gaacaagcct ggggtgtaca cccgtgtcac ctccttcctg 1320
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<210> 60
<211> 453
<212> PRT
<213> Homo sapiens

<400> 60

```
Met Gly Glu Asn Asp Pro Pro Ala Val Glu Ala Pro Phe Ser Phe Arg
 1               5                  10                  15

Ser Leu Phe Gly Leu Asp Asp Leu Lys Ile Ser Pro Val Ala Pro Asp
                20                  25                  30

Ala Asp Ala Val Ala Ala Gln Ile Leu Ser Leu Leu Pro Leu Lys Phe
            35                  40                  45

Phe Pro Ile Ile Val Ile Gly Ile Ile Ala Leu Ile Leu Ala Leu Ala
        50                  55                  60

Ile Gly Leu Gly Ile His Phe Asp Cys Ser Gly Lys Tyr Arg Cys Arg
65                  70                  75                  80

Ser Ser Phe Lys Cys Ile Glu Leu Ile Ala Arg Cys Asp Gly Val Ser
                85                  90                  95

Asp Cys Lys Asp Gly Glu Asp Glu Tyr Arg Cys Val Arg Val Gly Gly
            100                 105                 110

Gln Asn Ala Val Leu Gln Val Phe Thr Ala Ala Ser Trp Lys Thr Met
        115                 120                 125

Cys Ser Asp Asp Trp Lys Gly His Tyr Ala Asn Val Ala Cys Ala Gln
    130                 135                 140

Leu Gly Phe Pro Ser Tyr Val Ser Ser Asp Asn Leu Arg Val Ser Ser
145                 150                 155                 160

Leu Glu Gly Gln Phe Arg Glu Glu Phe Val Ser Ile Asp His Leu Leu
                165                 170                 175

Pro Asp Asp Lys Val Thr Ala Leu His His Ser Val Tyr Val Arg Glu
            180                 185                 190

Gly Cys Ala Ser Gly His Val Val Thr Leu Gln Cys Thr Ala Cys Gly
        195                 200                 205

His Arg Arg Gly Tyr Ser Ser Arg Ile Val Gly Gly Asn Met Ser Leu
    210                 215                 220

Leu Ser Gln Trp Pro Trp Gln Ala Ser Leu Gln Phe Gln Gly Tyr His
225                 230                 235                 240

Leu Cys Gly Gly Ser Val Ile Thr Pro Leu Trp Ile Ile Thr Ala Ala
                245                 250                 255
```

86

```
His Cys Val Tyr Asp Leu Tyr Leu Pro Lys Ser Trp Thr Ile Gln Val
            260                 265             270

Gly Leu Val Ser Leu Leu Asp Asn Pro Ala Pro Ser His Leu Val Glu
            275                 280             285

Lys Ile Val Tyr His Ser Lys Tyr Lys Pro Lys Arg Leu Gly Asn Asp
    290                 295             300

Ile Ala Leu Met Lys Leu Ala Gly Pro Leu Thr Phe Asn Glu Met Ile
305                 310             315                 320

Gln Pro Val Cys Leu Pro Asn Ser Glu Glu Asn Phe Pro Asp Gly Lys
            325                 330                 335

Val Cys Trp Thr Ser Gly Trp Gly Ala Thr Glu Asp Gly Gly Asp Ala
            340                 345             350

Ser Pro Val Leu Asn His Ala Ala Val Pro Leu Ile Ser Asn Lys Ile
            355                 360             365

Cys Asn His Arg Asp Val Tyr Gly Gly Ile Ile Ser Pro Ser Met Leu
    370                 375             380

Cys Ala Gly Tyr Leu Thr Gly Gly Val Asp Ser Cys Gln Gly Asp Ser
385                 390             395                 400

Gly Gly Pro Leu Val Cys Gln Glu Arg Arg Leu Trp Lys Leu Val Gly
            405                 410                 415

Ala Thr Ser Phe Gly Ile Gly Cys Ala Glu Val Asn Lys Pro Gly Val
            420                 425             430

Tyr Thr Arg Val Thr Ser Phe Leu Asp Trp Ile His Glu Gln Met Glu
            435                 440             445

Arg Asp Leu Lys Thr
    450


<210> 61
<211> 3229
<212> DNA
<213> Homo sapiens

<400> 61
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agtcgtatca ggggtcggga ccaaggccca aatgtctgtg cccttcaaca gattttgggc 180
accaaaaaga aatacttcag cacttgtaag aactggtata aaaagtccat ctgtggacag 240
aaaacgactg tttttatatga atgttgccct ggttatatga gaatggaagg aatgaaaggc 300
tgcccagcag ttttgcccat tgaccatgtt tatggcactc tgggcatcgt gggagccacc 360
acaacgcagc gctattctga cgcctcaaaa ctgagggagg agatcgaggg aaagggatcc 420
ttcacttact ttgcaccgag taatgaggct tgggacaact ggattctga tatccgtaga 480
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aagagaatgt tgaccaagga cttaaaaaat ggcatgatta ttccttcaat gtataacaat 600
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caaattggta cctcaattca agacttcatt gaagcagaag atgacctttc atcttttaga 780
gcagctgcca tcacatcgga catattggag gcccttggaa gagacggtca cttcacactc 840
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87

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aaatacacca aaatcattga tggagtgcct gtggaaataa ctgaaaaaga gacacgagaa 2280
gaacgaatca ttacaggtcc tgaaataaaa tacactagga tttctactgg aggtggagaa 2340
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```

<210> 62
<211> 836
<212> PRT
<213> Homo sapiens

<400> 62
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Met Ile Pro Phe Leu Pro Met Phe Ser Leu Leu Leu Leu Ile Val
1               5                   10                  15

Asn Pro Ile Asn Ala Asn Asn His Tyr Asp Lys Ile Leu Ala His Ser
            20                  25                  30

Arg Ile Arg Gly Arg Asp Gln Gly Pro Asn Val Cys Ala Leu Gln Gln
        35                  40                  45

Ile Leu Gly Thr Lys Lys Lys Tyr Phe Ser Thr Cys Lys Asn Trp Tyr
    50                  55                  60

Lys Lys Ser Ile Cys Gly Gln Lys Thr Thr Val Leu Tyr Glu Cys Cys
65                  70                  75                  80
```

88
```

```
Pro Gly Tyr Met Arg Met Glu Gly Met Lys Gly Cys Pro Ala Val Leu
            85                      90                  95

Pro Ile Asp His Val Tyr Gly Thr Leu Gly Ile Val Gly Ala Thr Thr
            100                 105                 110

Thr Gln Arg Tyr Ser Asp Ala Ser Lys Leu Arg Glu Glu Ile Glu Gly
        115                 120                 125

Lys Gly Ser Phe Thr Tyr Phe Ala Pro Ser Asn Glu Ala Trp Asp Asn
    130             135                 140

Leu Asp Ser Asp Ile Arg Arg Gly Leu Glu Ser Asn Val Asn Val Glu
145                 150                 155                 160

Leu Leu Asn Ala Leu His Ser His Met Ile Asn Lys Arg Met Leu Thr
            165                 170                 175

Lys Asp Leu Lys Asn Gly Met Ile Ile Pro Ser Met Tyr Asn Asn Leu
        180                 185                 190

Gly Leu Phe Ile Asn His Tyr Pro Asn Gly Val Val Thr Val Asn Cys
        195                 200                 205

Ala Arg Ile Ile His Gly Asn Gln Ile Ala Thr Asn Gly Val Val His
    210                 215                 220

Val Ile Asp Arg Val Leu Thr Gln Ile Gly Thr Ser Ile Gln Asp Phe
225                 230                 235                 240

Ile Glu Ala Glu Asp Asp Leu Ser Ser Phe Arg Ala Ala Ala Ile Thr
            245                 250                 255

Ser Asp Ile Leu Glu Ala Leu Gly Arg Asp Gly His Phe Thr Leu Phe
            260                 265                 270

Ala Pro Thr Asn Glu Ala Phe Glu Lys Leu Pro Arg Gly Val Leu Glu
        275                 280                 285

Arg Phe Met Gly Asp Lys Val Ala Ser Glu Ala Leu Met Lys Tyr His
    290                 295                 300

Ile Leu Asn Thr Leu Gln Cys Ser Glu Ser Ile Met Gly Gly Ala Val
305                 310                 315                 320

Phe Glu Thr Leu Glu Gly Asn Thr Ile Glu Ile Gly Cys Asp Gly Asp
            325                 330                 335

Ser Ile Thr Val Asn Gly Ile Lys Met Val Asn Lys Lys Asp Ile Val
        340                 345                 350

Thr Asn Asn Gly Val Ile His Leu Ile Asp Gln Val Leu Ile Pro Asp
        355                 360                 365

Ser Ala Lys Gln Val Ile Glu Leu Ala Gly Lys Gln Gln Thr Thr Phe
    370             375                 380

Thr Asp Leu Val Ala Gln Leu Gly Leu Ala Ser Ala Leu Arg Pro Asp
385                 390                 395                 400
```

Gly Glu Tyr Thr Leu Leu Ala Pro Val Asn Asn Ala Phe Ser Asp Asp
              405   410   415

Thr Leu Ser Met Val Gln Arg Leu Leu Lys Leu Ile Leu Gln Asn His
              420   425   430

Ile Leu Lys Val Lys Val Gly Leu Asn Glu Leu Tyr Asn Gly Gln Ile
          435   440   445

Leu Glu Thr Ile Gly Gly Lys Gln Leu Arg Val Phe Val Tyr Arg Thr
    450   455   460

Ala Val Cys Ile Glu Asn Ser Cys Met Glu Lys Gly Ser Lys Gln Gly
465   470   475   480

Arg Asn Gly Ala Ile His Ile Phe Arg Glu Ile Ile Lys Pro Ala Glu
              485   490   495

Lys Ser Leu His Glu Lys Leu Lys Gln Asp Lys Arg Phe Ser Thr Phe
              500   505   510

Leu Ser Leu Leu Glu Ala Ala Asp Leu Lys Glu Leu Leu Thr Gln Pro
          515   520   525

Gly Asp Trp Thr Leu Phe Val Pro Thr Asn Asp Ala Phe Lys Gly Met
    530   535   540

Thr Ser Glu Glu Lys Glu Ile Leu Ile Arg Asp Lys Asn Ala Leu Gln
545   550   555   560

Asn Ile Ile Leu Tyr His Leu Thr Pro Gly Val Phe Ile Gly Lys Gly
              565   570   575

Phe Glu Pro Gly Val Thr Asn Ile Leu Lys Thr Thr Gln Gly Ser Lys
          580   585   590

Ile Phe Leu Lys Glu Val Asn Asp Thr Leu Leu Val Asn Glu Leu Lys
          595   600   605

Ser Lys Glu Ser Asp Ile Met Thr Thr Asn Gly Val Ile His Val Val
    610   615   620

Asp Lys Leu Leu Tyr Pro Ala Asp Thr Pro Val Gly Asn Asp Gln Leu
625   630   635   640

Leu Glu Ile Leu Asn Lys Leu Ile Lys Tyr Ile Gln Ile Lys Phe Val
              645   650   655

Arg Gly Ser Thr Phe Lys Glu Ile Pro Val Thr Val Tyr Thr Thr Lys
              660   665   670

Ile Ile Thr Lys Val Val Glu Pro Lys Ile Lys Val Ile Glu Gly Ser
          675   680   685

Leu Gln Pro Ile Ile Lys Thr Glu Gly Pro Thr Leu Thr Lys Val Lys
    690   695   700

Ile Glu Gly Glu Pro Glu Phe Arg Leu Ile Lys Glu Gly Glu Thr Ile
705   710   715   720

```
Thr Glu Val Ile His Gly Glu Pro Ile Ile Lys Lys Tyr Thr Lys Ile
            725                 730             735
```

```
Ile Asp Gly Val Pro Val Glu Ile Thr Glu Lys Glu Thr Arg Glu Glu
            740                 745             750
```

```
Arg Ile Ile Thr Gly Pro Glu Ile Lys Tyr Thr Arg Ile Ser Thr Gly
            755                 760             765
```

```
Gly Gly Glu Thr Glu Glu Thr Leu Lys Lys Leu Leu Gln Glu Glu Val
    770                 775             780
```

```
Thr Lys Val Thr Lys Phe Ile Glu Gly Gly Asp Gly His Leu Phe Glu
785                 790             795             800
```

```
Asp Glu Glu Ile Lys Arg Leu Leu Gln Gly Asp Thr Pro Val Arg Lys
                805             810             815
```

```
Leu Gln Ala Asn Lys Lys Val Gln Gly Ser Arg Arg Arg Leu Arg Glu
            820             825             830
```

```
Gly Arg Ser Gln
        835
```


<210> 63
<211> 3737
<212> DNA
<213> Homo sapiens

<400> 63
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cggtgctgct gctgctgctg ctgctgccgc cactgctgct gctggcgggg gccgtcccgc 180
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agaacaatgg cggctgccag catacctgtg tcaacgtcat ggggagctat gagtgctgct 540
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91

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<213> Homo sapiens

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            20                  25                  30


Pro Pro Gly Arg Gly Arg Ala Ala Gly Pro Gln Glu Asp Val Asp Glu
        35                  40                  45


Cys Ala Gln Gly Leu Asp Asp Cys His Ala Asp Ala Leu Cys Gln Asn
    50                  55                  60


Thr Pro Thr Ser Tyr Lys Cys Ser Cys Lys Pro Gly Tyr Gln Gly Glu
65                  70                  75                  80


Gly Arg Gln Cys Glu Asp Ile Asp Glu Cys Gly Asn Glu Leu Asn Gly
                85                  90                  95


Gly Cys Val His Asp Cys Leu Asn Ile Pro Gly Asn Tyr Arg Cys Thr
            100                 105                 110
```

92

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Cys Phe Asp Gly Phe Met Leu Ala His Asp Gly His Asn Cys Leu Asp
        115             120             125

Val Asp Glu Cys Leu Glu Asn Asn Gly Gly Cys Gln His Thr Cys Val
    130             135             140

Asn Val Met Gly Ser Tyr Glu Cys Cys Cys Lys Glu Gly Phe Phe Leu
145             150             155             160

Ser Asp Asn Gln His Thr Cys Ile His Arg Ser Glu Glu Gly Leu Ser
            165             170             175

Cys Met Asn Lys Asp His Gly Cys Ser His Ile Cys Lys Glu Ala Pro
        180             185             190

Arg Gly Ser Val Ala Cys Glu Cys Arg Pro Gly Phe Glu Leu Ala Lys
        195             200             205

Asn Gln Arg Asp Cys Ile Leu Thr Cys Asn His Gly Asn Gly Gly Cys
    210             215             220

Gln His Ser Cys Asp Asp Thr Ala Asp Gly Pro Glu Cys Ser Cys His
225             230             235             240

Pro Gln Tyr Lys Met His Thr Asp Gly Arg Ser Cys Leu Glu Arg Glu
            245             250             255

Asp Thr Val Leu Glu Val Thr Glu Ser Asn Thr Thr Ser Val Val Asp
            260             265             270

Gly Asp Lys Arg Val Lys Arg Arg Leu Leu Met Glu Thr Cys Ala Val
        275             280             285

Asn Asn Gly Gly Cys Asp Arg Thr Cys Lys Asp Thr Ser Thr Gly Val
    290             295             300

His Cys Ser Cys Pro Val Gly Phe Thr Leu Gln Leu Asp Gly Lys Thr
305             310             315             320

Cys Lys Asp Ile Asp Glu Cys Gln Thr Arg Asn Gly Gly Cys Asp His
            325             330             335

Phe Cys Lys Asn Ile Val Gly Ser Phe Asp Cys Gly Cys Lys Lys Gly
        340             345             350

Phe Lys Leu Leu Thr Asp Glu Lys Ser Cys Gln Asp Val Asp Glu Cys
        355             360             365

Ser Leu Asp Arg Thr Cys Asp His Ser Cys Ile Asn His Pro Gly Thr
    370             375             380

Phe Ala Cys Ala Cys Asn Arg Gly Tyr Thr Leu Tyr Gly Phe Thr His
385             390             395             400

Cys Gly Asp Thr Asn Glu Cys Ser Ile Asn Asn Gly Gly Cys Gln Gln
            405             410             415

Val Cys Val Asn Thr Val Gly Ser Tyr Glu Cys Gln Cys His Pro Gly
        420             425             430
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93

```
Tyr Lys Leu His Trp Asn Lys Lys Asp Cys Val Glu Val Lys Gly Leu
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Leu Pro Thr Ser Val Ser Pro Arg Val Ser Leu His Cys Gly Lys Ser
        450                 455                 460

Gly Gly Gly Asp Gly Cys Phe Leu Arg Cys His Ser Gly Ile His Leu
465                 470                 475                 480

Ser Ser Asp Val Thr Thr Ile Arg Thr Ser Val Thr Phe Lys Leu Asn
                485                 490                 495

Glu Gly Lys Cys Ser Leu Lys Asn Ala Glu Leu Phe Pro Glu Gly Leu
            500                 505                 510

Arg Pro Ala Leu Pro Glu Lys His Ser Ser Val Lys Glu Ser Phe Arg
        515                 520                 525

Tyr Val Asn Leu Thr Cys Ser Ser Gly Lys Gln Val Pro Gly Ala Pro
        530                 535                 540

Gly Arg Pro Ser Thr Pro Lys Glu Met Phe Ile Thr Val Glu Phe Glu
545                 550                 555                 560

Leu Glu Thr Asn Gln Lys Glu Val Thr Ala Ser Cys Asp Leu Ser Cys
                565                 570                 575

Ile Val Lys Arg Thr Glu Lys Arg Leu Arg Lys Ala Ile Arg Thr Leu
            580                 585                 590

Arg Lys Ala Val His Arg Glu Gln Phe His Leu Gln Leu Ser Gly Met
        595                 600                 605

Asn Leu Asp Val Ala Lys Lys Pro Pro Arg Thr Ser Glu Arg Gln Ala
    610                 615                 620

Glu Ser Cys Gly Val Gly Gln Gly His Ala Glu Asn Gln Cys Val Ser
625                 630                 635                 640

Cys Arg Ala Gly Thr Tyr Tyr Asp Gly Ala Arg Glu Arg Cys Ile Leu
                645                 650                 655

Cys Pro Asn Gly Thr Phe Gln Asn Glu Glu Gly Gln Met Thr Cys Glu
                660                 665                 670

Pro Cys Pro Arg Pro Gly Asn Ser Gly Ala Leu Lys Thr Pro Glu Ala
        675                 680                 685

Trp Asn Met Ser Glu Cys Gly Gly Leu Cys Gln Pro Gly Glu Tyr Ser
    690                 695                 700

Ala Asp Gly Phe Ala Pro Cys Gln Leu Cys Ala Leu Gly Thr Phe Gln
705                 710                 715                 720

Pro Glu Ala Gly Arg Thr Ser Cys Phe Pro Cys Gly Gly Gly Leu Ala
                725                 730                 735

Thr Lys His Gln Gly Ala Thr Ser Phe Gln Asp Cys Glu Thr Arg Val
        740                 745                 750
```

94

```
Gln Cys Ser Pro Gly His Phe Tyr Asn Thr Thr Thr His Arg Cys Ile
        755                 760                 765

Arg Cys Pro Val Gly Thr Tyr Gln Pro Glu Phe Gly Lys Asn Asn Cys
        770                 775                 780

Val Ser Cys Pro Gly Asn Thr Thr Thr Asp Phe Asp Gly Ser Thr Asn
785                 790                 795                 800

Ile Thr Gln Cys Lys Asn Arg Arg Cys Gly Gly Glu Leu Gly Asp Phe
                805                 810                 815

Thr Gly Tyr Ile Glu Ser Pro Asn Tyr Pro Gly Asn Tyr Pro Ala Asn
                820                 825                 830

Thr Glu Cys Thr Trp Thr Ile Asn Pro Pro Pro Lys Arg Arg Ile Leu
        835                 840                 845

Ile Val Val Pro Glu Ile Phe Leu Pro Ile Glu Asp Asp Cys Gly Asp
    850                 855                 860

Tyr Leu Val Met Arg Lys Thr Ser Ser Ser Asn Ser Val Thr Thr Tyr
865                 870                 875                 880

Glu Thr Cys Gln Thr Tyr Glu Arg Pro Ile Ala Phe Thr Ser Arg Ser
                885                 890                 895

Lys Lys Leu Trp Ile Gln Phe Lys Ser Asn Glu Gly Asn Ser Ala Arg
            900                 905                 910

Gly Phe Gln Val Pro Tyr Val Thr Tyr Asp Glu Asp Tyr Gln Glu Leu
        915                 920                 925

Ile Glu Asp Ile Val Arg Asp Gly Arg Leu Tyr Ala Ser Glu Asn His
    930                 935                 940

Gln Glu Ile Leu Lys Asp Lys Lys Leu Ile Lys Ala Leu Phe Asp Val
945                 950                 955                 960

Leu Ala His Pro Gln Asn Tyr Phe Lys Tyr Thr Ala Gln Glu Ser Arg
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Glu Met Phe Pro Arg Ser Phe Ile Arg Leu Leu Arg Ser Lys Val Ser
            980                 985                 990

Arg Phe Leu Arg Pro Tyr Lys
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<211> 2881
<212> DNA
<213> Homo sapiens

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<212> PRT
<213> Homo sapiens

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Gly Cys Ala Phe Val Leu Phe Leu Phe Leu Leu His Arg Asp Val Ser
             20                  25                  30


Ser Arg Glu Glu Ala Thr Glu Lys Pro Trp Leu Lys Ser Leu Val Ser
        35                  40                  45
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Arg Lys Asp His Val Leu Asp Leu Met Leu Glu Ala Met Asn Asn Leu
    50   55   60

Arg Asp Ser Met Pro Lys Leu Gln Ile Arg Ala Pro Glu Ala Gln Gln
65   70   75   80

Thr Leu Phe Ser Ile Asn Gln Ser Cys Leu Pro Gly Phe Tyr Thr Pro
            85   90   95

Ala Glu Leu Lys Pro Phe Trp Glu Arg Pro Pro Gln Asp Pro Asn Ala
            100   105   110

Pro Gly Ala Asp Gly Lys Ala Phe Gln Lys Ser Lys Trp Thr Pro Leu
        115   120   125

Glu Thr Gln Glu Lys Glu Glu Gly Tyr Lys Lys His Cys Phe Asn Ala
    130   135   140

Phe Ala Ser Asp Arg Ile Ser Leu Gln Arg Ser Leu Gly Pro Asp Thr
145   150   155   160

Arg Pro Pro Glu Cys Val Asp Gln Lys Phe Arg Arg Cys Pro Pro Leu
            165   170   175

Ala Thr Thr Ser Val Ile Ile Val Phe His Asn Glu Ala Trp Ser Thr
            180   185   190

Leu Leu Arg Thr Val Tyr Ser Val Leu His Thr Thr Pro Ala Ile Leu
        195   200   205

Leu Lys Glu Ile Ile Leu Val Asp Asp Ala Ser Thr Glu Glu His Leu
    210   215   220

Lys Glu Lys Leu Glu Gln Tyr Val Lys Gln Leu Gln Val Val Arg Val
225   230   235   240

Val Arg Gln Glu Glu Arg Lys Gly Leu Ile Thr Ala Arg Leu Leu Gly
            245   250   255

Ala Ser Val Ala Gln Ala Glu Val Leu Thr Phe Leu Asp Ala His Cys
            260   265   270

Glu Cys Phe His Gly Trp Leu Glu Pro Leu Leu Ala Arg Ile Ala Glu
        275   280   285

Asp Lys Thr Val Val Val Ser Pro Asp Ile Val Thr Ile Asp Leu Asn
    290   295   300

Thr Phe Glu Phe Ala Lys Pro Val Gln Arg Gly Arg Val His Ser Arg
305   310   315   320

Gly Asn Phe Asp Trp Ser Leu Thr Phe Gly Trp Glu Thr Leu Pro Pro
            325   330   335

His Glu Lys Gln Arg Arg Lys Asp Glu Thr Tyr Pro Ile Lys Ser Pro
        340   345   350

Thr Phe Ala Gly Gly Leu Phe Ser Ile Pro Lys Ser Tyr Phe Glu His
        355   360   365

97

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Ile Gly Thr Tyr Asp Asn Gln Met Glu Ile Trp Gly Gly Glu Asn Val
    370             375             380

Glu Met Ser Phe Arg Val Trp Gln Cys Gly Gly Gln Leu Glu Ile Ile
385             390             395                     400

Pro Cys Ser Val Val Gly His Val Phe Arg Thr Lys Ser Pro His Thr
            405             410             415

Phe Pro Lys Gly Thr Ser Val Ile Ala Arg Asn Gln Val Arg Leu Ala
            420             425             430

Glu Val Trp Met Asp Ser Tyr Lys Lys Ile Phe Tyr Arg Arg Asn Leu
        435             440             445

Gln Ala Ala Lys Met Ala Gln Glu Lys Ser Phe Gly Asp Ile Ser Glu
    450             455             460

Arg Leu Gln Leu Arg Glu Gln Leu His Cys His Asn Phe Ser Trp Tyr
465             470             475             480

Leu His Asn Val Tyr Pro Glu Met Phe Val Pro Asp Leu Thr Pro Thr
            485             490             495

Phe Tyr Gly Ala Ile Lys Asn Leu Gly Thr Asn Gln Cys Leu Asp Val
            500             505             510

Gly Glu Asn Asn Arg Gly Gly Lys Pro Leu Ile Met Tyr Ser Cys His
    515             520             525

Gly Leu Gly Gly Asn Gln Tyr Phe Glu Tyr Thr Thr Gln Arg Asp Leu
    530             535             540

Arg His Asn Ile Ala Lys Gln Leu Cys Leu His Val Ser Lys Gly Ala
545             550             555             560

Leu Gly Leu Gly Ser Cys His Phe Thr Gly Lys Asn Ser Gln Val Pro
            565             570             575

Lys Asp Glu Glu Trp Glu Leu Ala Gln Asp Gln Leu Ile Arg Asn Ser
            580             585             590

Gly Ser Gly Thr Cys Leu Thr Ser Gln Asp Lys Lys Pro Ala Met Ala
    595             600             605

Pro Cys Asn Pro Ser Asp Pro His Gln Leu Trp Leu Phe Val
    610             615             620


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<212> DNA
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98

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<212> PRT
<213> Homo sapiens

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Lys Lys Asn Pro Pro Leu Arg Asn Val Ala Ser Glu Gly Glu Gly Gln
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Ile Leu Glu Pro Ile Gly Thr Glu Ser Lys Val Ser Gly Lys Asn Lys
        35                  40                  45

Glu Phe Ser Ala Asp Gln Met Ser Glu Asn Thr Asp Gln Ser Asp Ala
    50                  55                  60

Ala Glu Leu Asn His Lys Glu Glu His Ser Leu His Val Gln Asp Pro
 65                  70                  75                  80
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Ser Ser Ser Ser Lys Lys Asp Leu Lys Ser Ala Val Leu Ser Glu Lys
                    85   90   95

Ala Gly Phe Asn Tyr Glu Ser Pro Ser Lys Gly Gly Asn Phe Pro Ser
                100   105   110

Phe Pro His Asp Glu Val Thr Asp Arg Asn Met Leu Ala Phe Ser Phe
            115   120   125

Pro Ala Ala Gly Gly Val Cys Glu Pro Leu Lys Ser Pro Gln Arg Ala
    130   135   140

Glu Ala Asp Asp Pro Gln Asp Met Ala Cys Thr Pro Ser Gly Asp Ser
145   150   155   160

Leu Glu Thr Lys Glu Asp Gln Lys Met Ser Pro Lys Ala Thr Glu Glu
                165   170   175

Thr Gly Gln Ala Gln Ser Gly Gln Ala Asn Cys Gln Gly Leu Ser Pro
            180   185   190

Val Ser Val Ala Ser Lys Asn Pro Gln Val Pro Ser Asp Gly Gly Val
        195   200   205

Arg Leu Asn Lys Ser Lys Thr Asp Leu Leu Val Asn Asp Asn Pro Asp
    210   215   220

Pro Ala Pro Leu Ser Pro Glu Leu Gln Asp Phe Lys Cys Asn Ile Cys
225   230   235   240

Gly Tyr Gly Tyr Tyr Gly Asn Asp Pro Thr Asp Leu Ile Lys His Phe
            245   250   255

Arg Lys Tyr His Leu Gly Leu His Asn Arg Thr Arg Gln Asp Ala Glu
            260   265   270

Leu Asp Ser Lys Ile Leu Ala Leu His Asn Met Val Gln Phe Ser His
    275   280   285

Ser Lys Asp Phe Gln Lys Val Asn Arg Ser Val Phe Ser Gly Val Leu
    290   295   300

Gln Asp Ile Asn Ser Ser Arg Pro Val Leu Leu Asn Gly Thr Tyr Asp
305   310   315   320

Val Gln Val Thr Ser Gly Gly Thr Phe Ile Gly Ile Gly Arg Lys Thr
            325   330   335

Pro Asp Cys Gln Gly Asn Thr Lys Tyr Phe Arg Cys Lys Phe Cys Asn
            340   345   350

Phe Thr Tyr Met Gly Asn Ser Ser Thr Glu Leu Glu Gln His Phe Leu
        355   360   365

Gln Thr His Pro Asn Lys Ile Lys Ala Ser Leu Pro Ser Ser Glu Val
    370   375   380

Ala Lys Pro Ser Glu Lys Asn Ser Asn Lys Ser Ile Pro Ala Leu Gln
385   390   395   400

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Ser Ser Asp Ser Gly Asp Leu Gly Lys Trp Gln Asp Lys Ile Thr Val
            405                 410                 415

Lys Ala Gly Asp Asp Thr Pro Val Gly Tyr Ser Val Pro Ile Lys Pro
            420                 425                 430

Leu Asp Ser Ser Arg Gln Asn Gly Thr Glu Ala Thr Ser Tyr Tyr Trp
            435                 440                 445

Cys Lys Phe Cys Ser Phe Ser Cys Glu Ser Ser Ser Ser Leu Lys Leu
    450                 455                 460

Leu Glu His Tyr Gly Lys Gln His Gly Ala Val Gln Ser Gly Gly Leu
465                 470                 475                 480

Asn Pro Glu Leu Asn Asp Lys Leu Ser Arg Gly Ser Val Ile Asn Gln
                485                 490                 495

Asn Asp Leu Ala Lys Ser Ser Glu Gly Glu Thr Met Thr Lys Thr Asp
            500                 505                 510

Lys Ser Ser Ser Gly Ala Lys Lys Lys Asp Phe Ser Ser Lys Gly Ala
        515                 520                 525

Glu Asp Asn Met Val Thr Ser Tyr Asn Cys Gln Phe Cys Asp Phe Arg
    530                 535                 540

Tyr Ser Lys Ser His Gly Pro Asp Val Ile Val Val Gly Pro Leu Leu
545                 550                 555                 560

Arg His Tyr Gln Gln Leu His Asn Ile His Lys Cys Thr Ile Lys His
                565                 570                 575

Cys Pro Phe Cys Pro Arg Gly Leu Cys Ser Pro Glu Lys His Leu Gly
        580                 585                 590

Glu Ile Thr Tyr Pro Phe Ala Cys Arg Lys Ser Asn Cys Ser His Cys
        595                 600                 605

Ala Leu Leu Leu Leu His Leu Ser Pro Gly Ala Ala Gly Ser Ser Arg
    610                 615                 620

Val Lys His Gln Cys His Gln Cys Ser Phe Thr Thr Pro Asp Val Asp
625                 630                 635                 640

Val Leu Leu Phe His Tyr Glu Ser Val His Glu Ser Gln Ala Ser Asp
                645                 650                 655

Val Lys Gln Glu Ala Asn His Leu Gln Gly Ser Asp Gly Gln Gln Ser
            660                 665                 670

Val Lys Glu Ser Lys Glu His Ser Cys Thr Lys Cys Asp Phe Ile Thr
            675                 680                 685

Gln Val Glu Glu Glu Ile Ser Arg His Tyr Arg Arg Ala His Ser Cys
            690                 695                 700

Tyr Lys Cys Arg Gln Cys Ser Phe Thr Ala Ala Asp Thr Gln Ser Leu
705                 710                 715                 720
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Leu Glu His Phe Asn Thr Val His Cys Gln Glu Gln Asp Ile Thr Thr
            725                 730                 735

Ala Asn Gly Glu Glu Asp Gly His Ala Ile Ser Thr Ile Lys Glu Glu
            740                 745                 750

Pro Lys Ile Asp Phe Arg Val Tyr Asn Leu Leu Thr Pro Asp Ser Lys
            755                 760                 765

Met Gly Glu Pro Val Ser Glu Ser Val Val Lys Arg Glu Lys Leu Glu
    770                 775                 780

Glu Lys Asp Gly Leu Lys Glu Lys Val Trp Thr Glu Ser Ser Ser Asp
785                 790                 795                 800

Asp Leu Arg Asn Val Thr Trp Arg Gly Ala Asp Ile Leu Arg Gly Ser
            805                 810                 815

Pro Ser Tyr Thr Gln Ala Ser Leu Gly Leu Leu Thr Pro Val Ser Gly
            820                 825                 830

Thr Gln Glu Gln Thr Lys Thr Leu Arg Asp Ser Pro Asn Val Glu Ala
            835                 840                 845

Ala His Leu Ala Arg Pro Ile Tyr Gly Leu Ala Val Glu Thr Lys Gly
    850                 855                 860

Phe Leu Gln Gly Ala Pro Ala Gly Gly Glu Lys Ser Gly Ala Leu Pro
865                 870                 875                 880

Gln Gln Tyr Pro Ala Ser Gly Glu Asn Lys Ser Lys Asp Glu Ser Gln
            885                 890                 895

Ser Leu Leu Arg Arg Arg Arg Gly Ser Gly Val Phe Cys Ala Asn Cys
            900                 905                 910

Leu Thr Thr Lys Thr Ser Leu Trp Arg Lys Asn Ala Asn Gly Gly Tyr
            915                 920                 925

Val Cys Asn Ala Cys Gly Leu Tyr Gln Lys Leu His Ser Thr Pro Arg
    930                 935                 940

Pro Leu Asn Ile Ile Lys Gln Asn Asn Gly Glu Gln Ile Ile Arg Arg
945                 950                 955                 960

Arg Thr Arg Lys Arg Leu Asn Pro Glu Ala Leu Gln Ala Glu Gln Leu
            965                 970                 975

Asn Lys Gln Gln Arg Gly Ser Asn Glu Glu Gln Val Asn Gly Ser Pro
            980                 985                 990

Leu Glu Arg Arg Ser Glu Asp His Leu Thr Glu Ser His Gln Arg Glu
            995                 1000                1005

Ile Pro Leu Pro Ser Leu Ser Lys Tyr Glu Ala Gln Gly Ser Leu Thr
    1010                1015                1020

Lys Ser His Ser Ala Gln Gln Pro Val Leu Val Ser Gln Thr Leu Asp
1025                1030                1035                1040
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104

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Ile His Lys Arg Met Gln Pro Leu His Ile Gln Ile Lys Ser Pro Gln
              1045                1050                1055

Glu Ser Thr Gly Asp Pro Gly Asn Ser Ser Ser Val Ser Glu Gly Lys
              1060                1065                1070

Gly Ser Ser Glu Arg Gly Ser Pro Ile Glu Lys Tyr Met Arg Pro Ala
         1075                1080                1085

Lys His Pro Asn Tyr Ser Pro Pro Gly Ser Pro Ile Glu Lys Tyr Gln
      1090                1095                1100

Tyr Pro Leu Phe Gly Leu Pro Phe Val His Asn Asp Phe Gln Ser Glu
1105                1110                1115                1120

Ala Asp Trp Leu Arg Phe Trp Ser Lys Tyr Lys Leu Ser Val Pro Gly
              1125                1130                1135

Asn Pro His Tyr Leu Ser His Val Pro Gly Leu Pro Asn Pro Cys Gln
              1140                1145                1150

Asn Tyr Val Pro Tyr Pro Thr Phe Asn Leu Pro Pro His Phe Ser Ala
         1155                1160                1165

Val Gly Ser Asp Asn Asp Ile Pro Leu Asp Leu Ala Ile Lys His Ser
      1170                1175                1180

Arg Pro Gly Pro Thr Ala Asn Gly Ala Ser Lys Glu Lys Thr Lys Ala
1185                1190                1195                1200

Pro Pro Asn Val Lys Asn Glu Gly Pro Leu Asn Val Val Lys Thr Glu
              1205                1210                1215

Lys Val Asp Arg Ser Thr Gln Asp Glu Leu Ser Thr Lys Cys Val His
         1220                1225                1230

Cys Gly Ile Val Phe Leu Asp Glu Val Met Tyr Ala Leu His Met Ser
         1235                1240                1245

Cys His Gly Asp Ser Gly Pro Phe Gln Cys Ser Ile Cys Gln His Leu
      1250                1255                1260

Cys Thr Asp Lys Tyr Asp Phe Thr Thr His Ile Gln Arg Gly Leu His
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Arg Asn Asn Ala Gln Val Glu Lys Asn Gly Lys Pro Lys Glu
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105

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Lys Lys Pro Pro Glu Val Lys Met Phe Gly Ala Ser Gln Gly Leu Leu
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Thr Met Glu Thr Asn Gln Ser Leu Ala Gln Gly Thr Gly Cys Ser Val
            35   40   45

Val Lys Val Asp Thr Val Leu Phe Glu Ser Leu Tyr His Cys Gly Phe
        50   55   60

Glu His Gly Ser Val Met His Cys Leu Gly Asp Asp His Pro Gln Glu
 65   70   75   80

Asp Arg Lys Ala His Phe Ser Ala Pro Val Ala Ala Ile Ala Ser Pro
                85   90   95

Ala Pro Thr Pro Val Cys Pro Ala His His Ser Thr Gln Ser Ile Cys
            100   105   110

Gln Phe Leu Gln His Cys Arg Gln Asn Thr His Leu Gln Ala Ala Asn
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107

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<210> 72
<211> 386
<212> PRT
<213> Homo sapiens

<400> 72
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Met Cys Ser Ser Val Ala Ala Lys Leu Trp Phe Leu Thr Asp Arg Arg
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Ile Arg Glu Asp Tyr Pro Gln Lys Glu Ile Leu Arg Ala Leu Lys Ala
            20                  25                  30

Lys Cys Cys Glu Glu Glu Leu Asp Phe Arg Ala Val Val Met Asp Glu
            35                  40                  45

Val Val Leu Thr Ile Glu Gln Gly Asn Leu Gly Leu Arg Ile Asn Gly
    50                  55                  60

Glu Leu Ile Thr Ala Tyr Pro Gln Val Val Val Arg Val Pro Thr
65                  70                  75                  80

Pro Trp Val Gln Ser Asp Ser Asp Ile Thr Val Leu Arg His Leu Glu
                85                  90                  95

Lys Met Gly Cys Arg Leu Met Asn Arg Pro Gln Ala Ile Leu Asn Cys
            100                 105                 110

Val Asn Lys Phe Trp Thr Phe Gln Glu Leu Ala Gly His Gly Val Pro
            115                 120                 125

Leu Pro Asp Thr Phe Ser Tyr Gly Gly His Glu Asn Phe Ala Lys Met
            130                 135                 140

Ile Asp Glu Ala Glu Val Leu Glu Phe Pro Met Val Val Lys Asn Thr
145                 150                 155                 160

Arg Gly His Arg Gly Lys Ala Val Phe Leu Ala Arg Asp Lys His His
            165                 170                 175

Leu Ala Asp Leu Ser His Leu Ile Arg His Glu Ala Pro Tyr Leu Phe
            180                 185                 190

Gln Lys Tyr Val Lys Glu Ser His Gly Arg Asp Val Arg Val Ile Val
            195                 200                 205

Val Gly Gly Arg Val Val Gly Thr Met Leu Arg Cys Ser Thr Asp Gly
    210                 215                 220
```

108

```
Arg Met Gln Ser Asn Cys Ser Leu Gly Gly Val Gly Met Met Cys Ser
225             230             235             240

Leu Ser Glu Gln Gly Lys Gln Leu Ala Ile Gln Val Ser Asn Ile Leu
            245             250             255

Gly Met Asp Val Cys Gly Ile Asp Leu Leu Met Lys Asp Asp Gly Ser
            260             265             270

Phe Cys Val Cys Glu Ala Asn Ala Asn Val Gly Phe Ile Ala Phe Asp
            275             280             285

Lys Ala Cys Asn Leu Asp Val Ala Gly Ile Ile Ala Asp Tyr Ala Ala
            290             295             300

Ser Leu Leu Pro Ser Gly Arg Leu Thr Arg Arg Met Ser Leu Leu Ser
305             310             315             320

Val Val Ser Thr Ala Ser Glu Thr Ser Glu Pro Glu Leu Gly Pro Pro
                325             330             335

Ala Ser Thr Ala Val Asp Asn Met Ser Ala Ser Ser Ser Ser Val Asp
            340             345             350

Ser Asp Pro Glu Ser Thr Glu Arg Glu Leu Leu Thr Lys Leu Pro Gly
            355             360             365

Gly Leu Phe Asn Met Asn Gln Leu Leu Ala Asn Glu Ile Lys Leu Leu
            370             375             380

Val Asp
385


<210> 73
<211> 1431
<212> DNA
<213> Homo sapiens

<400> 73
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109

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<210> 74
<211> 314
<212> PRT
<213> Homo sapiens

<400> 74

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Met Ser Glu Asn Ala Ala Pro Gly Leu Ile Ser Glu Leu Lys Leu Ala
 1               5                  10                  15

Val Pro Trp Gly His Ile Ala Ala Lys Ala Trp Gly Ser Leu Gln Gly
            20                  25                  30

Pro Pro Val Leu Cys Leu His Gly Trp Leu Asp Asn Ala Ser Ser Phe
        35                  40                  45

Asp Arg Leu Ile Pro Leu Leu Pro Gln Asp Phe Tyr Tyr Val Ala Met
    50                  55                  60

Asp Phe Gly Gly His Gly Leu Ser Ser His Tyr Ser Pro Gly Val Pro
65                  70                  75                  80

Tyr Tyr Leu Gln Thr Phe Val Ser Glu Ile Arg Arg Val Val Ala Ala
            85                  90                  95

Leu Lys Trp Asn Arg Phe Ser Ile Leu Gly His Ser Phe Gly Gly Val
            100                 105                 110

Val Gly Gly Met Phe Phe Cys Thr Phe Pro Glu Met Val Asp Lys Leu
        115                 120                 125

Ile Leu Leu Asp Thr Pro Leu Phe Leu Leu Glu Ser Asp Glu Met Glu
    130                 135                 140

Asn Leu Leu Thr Tyr Lys Arg Arg Ala Ile Glu His Val Leu Gln Val
145                 150                 155                 160

Glu Ala Ser Gln Glu Pro Ser His Val Phe Ser Leu Lys Gln Leu Leu
            165                 170                 175

Gln Arg Leu Leu Lys Ser Asn Ser His Leu Ser Glu Glu Cys Gly Glu
            180                 185                 190

Leu Leu Leu Gln Arg Gly Thr Thr Lys Val Ala Thr Gly Leu Val Leu
        195                 200                 205

Asn Arg Asp Gln Arg Leu Ala Trp Ala Glu Asn Ser Ile Asp Phe Ile
    210                 215                 220

Ser Arg Glu Leu Cys Ala His Ser Ile Arg Lys Leu Gln Ala His Val
225                 230                 235                 240

Leu Leu Ile Lys Ala Val His Gly Tyr Phe Asp Ser Arg Gln Asn Tyr
            245                 250                 255

Ser Glu Lys Glu Ser Leu Ser Phe Met Ile Asp Thr Met Lys Ser Thr
            260                 265                 270
```

110

Leu Lys Glu Gln Phe Gln Phe Val Glu Val Pro Gly Asn His Cys Val
        275   280   285

His Met Ser Glu Pro Gln His Val Ala Ser Ile Ile Ser Ser Phe Leu
        290   295   300

Gln Cys Thr His Met Leu Pro Ala Gln Leu
305   310

<210> 75
<211> 1442
<212> DNA
<213> Homo sapiens

<400> 75
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caccatcttt aagaaccgta atactcaccg caagggtctg caacttcatt cttgaagtca 240
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cc   1442

<210> 76
<211> 280
<212> PRT
<213> Homo sapiens

<400> 76
Met Leu Ser Ala Val Ala Arg Gly Tyr Gln Gly Trp Phe His Pro Cys
  1   5   10   15

Ala Arg Leu Ser Val Arg Met Ser Ser Thr Gly Ile Asp Arg Lys Gly
             20   25   30

Val Leu Ala Asn Arg Val Ala Val Val Thr Gly Ser Thr Ser Gly Ile
         35   40   45

Gly Phe Ala Ile Ala Arg Arg Leu Ala Arg Asp Gly Ala His Val Val
     50   55   60

```
Ile Ser Ser Arg Lys Gln Gln Asn Val Asp Arg Ala Met Ala Lys Leu
65              70                  75                  80

Gln Gly Glu Gly Leu Ser Val Ala Gly Ile Val Cys His Val Gly Lys
                85                  90                  95

Ala Glu Asp Arg Glu Gln Leu Val Ala Lys Ala Leu Glu His Cys Gly
            100                 105                 110

Gly Val Asp Phe Leu Val Cys Ser Ala Gly Val Asn Pro Leu Val Gly
            115                 120                 125

Ser Thr Leu Gly Thr Ser Glu Gln Ile Trp Asp Lys Ile Leu Ser Val
    130                 135                 140

Asn Val Lys Ser Pro Ala Leu Leu Leu Ser Gln Leu Leu Pro Tyr Met
145                 150                 155                 160

Glu Asn Arg Arg Gly Ala Val Ile Leu Val Ser Ser Ile Ala Ala Tyr
                165                 170                 175

Asn Pro Val Val Ala Leu Gly Val Tyr Asn Val Ser Lys Thr Ala Leu
            180                 185                 190

Leu Gly Leu Thr Arg Thr Leu Ala Leu Glu Leu Ala Pro Lys Asp Ile
    195                 200                 205

Arg Val Asn Cys Val Val Pro Gly Ile Ile Lys Thr Asp Phe Ser Lys
    210                 215                 220

Val Phe His Gly Asn Glu Ser Leu Trp Lys Asn Phe Lys Glu His His
225                 230                 235                 240

Gln Leu Gln Arg Ile Gly Glu Ser Asp Cys Ala Gly Ile Val Ser
            245                 250                 255

Phe Leu Cys Ser Pro Asp Ala Ser Tyr Val Asn Gly Glu Asn Ile Ala
            260                 265                 270

Val Ala Gly Tyr Ser Thr Arg Leu
    275                 280


<210> 77
<211> 1743
<212> DNA
<213> Homo sapiens

<400> 77
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112

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<210> 78
<211> 475
<212> PRT
<213> Homo sapiens

<400> 78
Met His Leu Ala Phe Leu Val Leu Leu Cys Leu Pro Val Cys Ser Ala
  1               5                  10                  15

Tyr Pro Leu Ser Gly Ala Ala Lys Glu Glu Asp Ser Asn Lys Asp Leu
             20                  25                  30

Ala Gln Gln Tyr Leu Glu Lys Tyr Tyr Asn Leu Glu Lys Asp Val Lys
         35                  40                  45

Gln Phe Arg Arg Lys Asp Ser Asn Leu Ile Val Lys Lys Ile Gln Gly
     50                  55                  60

Met Gln Lys Phe Leu Gly Leu Glu Val Thr Gly Lys Leu Asp Thr Asp
 65                  70                  75                  80

Thr Leu Glu Val Met Arg Lys Pro Arg Cys Gly Val Pro Asp Val Gly
                 85                  90                  95

His Phe Ser Ser Phe Pro Gly Met Pro Lys Trp Arg Lys Thr His Leu
                100                 105                 110

Thr Tyr Arg Ile Val Asn Tyr Thr Pro Asp Leu Pro Arg Asp Ala Val
            115                 120                 125

Asp Ser Ala Ile Glu Lys Ala Leu Lys Val Trp Glu Glu Val Thr Pro
    130                 135                 140

Leu Thr Phe Ser Arg Leu Tyr Glu Gly Glu Ala Asp Ile Met Ile Ser
145                 150                 155                 160

Phe Ala Val Lys Glu His Gly Asp Phe Tyr Ser Phe Asp Gly Pro Gly
                165                 170                 175

His Ser Leu Ala His Ala Tyr Pro Pro Gly Pro Gly Leu Tyr Gly Asp
            180                 185                 190
```

113

Ile His Phe Asp Asp Asp Glu Lys Trp Thr Glu Asp Ala Ser Gly Thr
        195   200   205

Asn Leu Phe Leu Val Ala Ala His Glu Leu Gly His Ser Leu Gly Leu
        210   215   220

Phe His Ser Ala Asn Thr Glu Ala Leu Met Tyr Pro Leu Tyr Asn Ser
225   230   235   240

Phe Thr Glu Leu Ala Gln Phe Arg Leu Ser Gln Asp Asp Val Asn Gly
            245   250   255

Ile Gln Ser Leu Tyr Gly Pro Pro Pro Ala Ser Thr Glu Glu Pro Leu
            260   265   270

Val Pro Thr Lys Ser Val Pro Ser Gly Ser Glu Met Pro Ala Lys Cys
        275   280   285

Asp Pro Ala Leu Ser Phe Asp Ala Ile Ser Thr Leu Arg Gly Glu Tyr
    290   295   300

Leu Phe Phe Lys Asp Arg Tyr Phe Trp Arg Arg Ser His Trp Asn Pro
305   310   315   320

Glu Pro Glu Phe His Leu Ile Ser Ala Phe Trp Pro Ser Leu Pro Ser
            325   330   335

Tyr Leu Asp Ala Ala Tyr Glu Val Asn Ser Arg Asp Thr Val Phe Ile
        340   345   350

Phe Lys Gly Asn Glu Phe Trp Ala Ile Arg Gly Asn Glu Val Gln Ala
        355   360   365

Gly Tyr Pro Arg Gly Ile His Thr Leu Gly Phe Pro Pro Thr Ile Arg
    370   375   380

Lys Ile Asp Ala Ala Val Ser Asp Lys Glu Lys Lys Lys Thr Tyr Phe
385   390   395   400

Phe Ala Ala Asp Lys Tyr Trp Arg Phe Asp Glu Asn Ser Gln Ser Met
            405   410   415

Glu Gln Gly Phe Pro Arg Leu Ile Ala Asp Asp Phe Pro Gly Val Glu
            420   425   430

Pro Lys Val Asp Ala Val Leu Gln Ala Phe Gly Phe Phe Tyr Phe Phe
        435   440   445

Ser Gly Ser Ser Gln Phe Glu Phe Asp Pro Asn Ala Arg Met Val Thr
    450   455   460

His Ile Leu Lys Ser Asn Ser Trp Leu His Cys
465   470   475

<210> 79
<211> 3198
<212> DNA
<213> Homo sapiens

114

<400> 79
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<210> 80
<211> 680
<212> PRT
<213> Homo sapiens

<400> 80

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20 25 30

Gly Pro Leu Pro Asn Thr Lys Thr Gln Phe Phe Ile Pro Tyr Thr Ile
35 40 45

Lys Ser Lys Gly Ile Ala Val Arg Gly Glu Gln Gly Thr Pro Gly Pro
50 55 60

Pro Gly Pro Ala Gly Pro Arg Gly His Pro Gly Pro Ser Gly Pro Pro
65 70 75 80

Gly Lys Pro Gly Tyr Gly Ser Pro Gly Leu Gln Gly Glu Pro Gly Leu
85 90 95

Pro Gly Pro Pro Gly Pro Ser Ala Val Gly Lys Pro Gly Val Pro Gly
100 105 110

Leu Pro Gly Lys Pro Gly Glu Arg Gly Pro Tyr Gly Pro Lys Gly Asp
115 120 125

Val Gly Pro Ala Gly Leu Pro Gly Pro Arg Gly Pro Pro Gly Pro Pro
130 135 140

Gly Ile Pro Gly Pro Ala Gly Ile Ser Val Pro Gly Lys Pro Gly Gln
145 150 155 160

Gln Gly Pro Thr Gly Ala Pro Gly Pro Arg Gly Phe Pro Gly Glu Lys
165 170 175

Gly Ala Pro Gly Val Pro Gly Met Asn Gly Gln Lys Gly Glu Met Gly
180 185 190

Tyr Gly Ala Pro Gly Arg Pro Gly Glu Arg Gly Leu Pro Gly Pro Gln
195 200 205

Gly Pro Thr Gly Pro Ser Gly Pro Pro Gly Val Gly Lys Arg Gly Glu
210 215 220

Asn Gly Val Pro Gly Gln Pro Gly Ile Lys Gly Asp Arg Gly Phe Pro
225 230 235 240

Gly Glu Met Gly Pro Ile Gly Pro Pro Gly Pro Gln Gly Pro Pro Gly
245 250 255

Glu Arg Gly Pro Glu Gly Ile Gly Lys Pro Gly Ala Ala Gly Ala Pro
260 265 270

Gly Gln Pro Gly Ile Pro Gly Thr Lys Gly Leu Pro Gly Ala Pro Gly
275 280 285

Ile Ala Gly Pro Pro Gly Pro Pro Gly Phe Gly Lys Pro Gly Leu Pro
290 295 300

Gly Leu Lys Gly Glu Arg Gly Pro Ala Gly Leu Pro Gly Gly Pro Gly
305 310 315 320

116

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Ala Lys Gly Glu Gln Gly Pro Ala Gly Leu Pro Gly Lys Pro Gly Leu
            325             330             335

Thr Gly Pro Pro Gly Asn Met Gly Pro Gln Gly Pro Lys Gly Ile Pro
            340             345             350

Gly Ser His Gly Leu Pro Gly Pro Lys Gly Glu Thr Gly Pro Ala Gly
        355             360             365

Pro Ala Gly Tyr Pro Gly Ala Lys Gly Glu Arg Gly Ser Pro Gly Ser
    370             375             380

Asp Gly Lys Pro Gly Tyr Pro Gly Lys Pro Gly Leu Asp Gly Pro Lys
385             390             395             400

Gly Asn Pro Gly Leu Pro Gly Pro Lys Gly Asp Pro Gly Val Gly Gly
            405             410             415

Pro Pro Gly Leu Pro Gly Pro Val Gly Pro Ala Gly Ala Lys Gly Met
            420             425             430

Pro Gly His Asn Gly Glu Ala Gly Pro Arg Gly Ala Pro Gly Ile Pro
        435             440             445

Gly Thr Arg Gly Pro Ile Gly Pro Pro Gly Ile Pro Gly Phe Pro Gly
    450             455             460

Ser Lys Gly Asp Pro Gly Ser Pro Gly Pro Pro Gly Pro Ala Gly Ile
465             470             475             480

Ala Thr Lys Gly Leu Asn Gly Pro Thr Gly Pro Pro Gly Pro Pro Gly
            485             490             495

Pro Arg Gly Pro Ser Gly Glu Pro Gly Leu Pro Gly Pro Pro Gly Pro
            500             505             510

Pro Gly Pro Pro Gly Gln Ala Val Met Pro Glu Gly Phe Ile Lys Ala
        515             520             525

Gly Gln Arg Pro Ser Leu Ser Gly Thr Pro Leu Val Ser Ala Asn Gln
    530             535             540

Gly Val Thr Gly Met Pro Val Ser Ala Phe Thr Val Ile Leu Ser Lys
545             550             555             560

Ala Tyr Pro Ala Ile Gly Thr Pro Ile Pro Phe Asp Lys Ile Leu Tyr
            565             570             575

Asn Arg Gln Gln His Tyr Asp Pro Arg Thr Gly Ile Phe Thr Cys Gln
        580             585             590

Ile Pro Gly Ile Tyr Tyr Phe Ser Tyr His Val His Val Lys Gly Thr
        595             600             605

His Val Trp Val Gly Leu Tyr Lys Asn Gly Thr Pro Val Met Tyr Thr
    610             615             620

Tyr Asp Glu Tyr Thr Lys Gly Tyr Leu Asp Gln Ala Ser Gly Ser Ala
625             630             635             640
```

117

Ile Ile Asp Leu Thr Glu Asn Asp Gln Val Trp Leu Gln Leu Pro Asn
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Ala Glu Ser Asn Gly Leu Tyr Ser Ser Glu Tyr Val His Ser Ser Phe
                660   665   670

Ser Gly Phe Leu Val Ala Pro Met
            675   680

<210> 81
<211> 3381
<212> DNA
<213> Homo sapiens

<400> 81
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118

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<210> 82
<211> 509
<212> PRT
<213> Homo sapiens

<400> 82

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Gly Ser Val Leu Gly Gln Ala Met Glu Lys Val Thr Gly Gly Asn Leu
            20                  25                  30

Leu Ser Met Leu Leu Ile Ala Cys Ala Phe Thr Leu Ser Leu Val Tyr
        35                  40                  45

Leu Ile Arg Leu Ala Ala Gly His Leu Val Gln Leu Pro Ala Gly Val
    50                  55                  60

Lys Ser Pro Pro Tyr Ile Phe Ser Pro Ile Pro Phe Leu Gly His Ala
65                  70                  75                  80

Ile Ala Phe Gly Lys Ser Pro Ile Glu Phe Leu Glu Asn Ala Tyr Glu
                85                  90                  95

Lys Tyr Gly Pro Val Phe Ser Phe Thr Met Val Gly Lys Thr Phe Thr
                100                 105                 110

Tyr Leu Leu Gly Ser Asp Ala Ala Ala Leu Leu Phe Asn Ser Lys Asn
        115                 120                 125

Glu Asp Leu Asn Ala Glu Asp Val Tyr Ser Arg Leu Thr Thr Pro Val
        130                 135                 140

Phe Gly Lys Gly Val Ala Tyr Asp Val Pro Asn Pro Val Phe Leu Glu
145                 150                 155                 160

Gln Lys Lys Met Leu Lys Ser Gly Leu Asn Ile Ala His Phe Lys Gln
                165                 170                 175

His Val Ser Ile Ile Glu Lys Glu Thr Lys Glu Tyr Phe Glu Ser Trp
                180                 185                 190

Gly Glu Ser Gly Glu Lys Asn Val Phe Glu Ala Leu Ser Glu Leu Ile
        195                 200                 205

Ile Leu Thr Ala Ser His Cys Leu His Gly Lys Glu Ile Arg Ser Gln
    210                 215                 220
```

119

```
Leu Asn Glu Lys Val Ala Gln Leu Tyr Ala Asp Leu Asp Gly Gly Phe
225             230             235             240

Ser His Ala Ala Trp Leu Leu Pro Gly Trp Leu Pro Leu Pro Ser Phe
                245             250             255

Arg Arg Arg Asp Arg Ala His Arg Glu Ile Lys Asp Ile Phe Tyr Lys
            260             265             270

Ala Ile Gln Lys Arg Arg Gln Ser Gln Glu Lys Ile Asp Asp Ile Leu
        275             280             285

Gln Thr Leu Leu Asp Ala Thr Tyr Lys Asp Gly Arg Pro Leu Thr Asp
    290             295             300

Asp Glu Val Ala Gly Met Leu Ile Gly Leu Leu Leu Ala Gly Gln His
305             310             315             320

Thr Ser Ser Thr Thr Ser Ala Trp Met Gly Phe Phe Leu Ala Arg Asp
            325             330             335

Lys Thr Leu Gln Lys Lys Cys Tyr Leu Glu Gln Lys Thr Val Cys Gly
        340             345             350

Glu Asn Leu Pro Pro Leu Thr Tyr Asp Gln Leu Lys Asp Leu Asn Leu
        355             360             365

Leu Asp Arg Cys Ile Lys Glu Thr Leu Arg Leu Arg Pro Pro Ile Met
    370             375             380

Ile Met Met Arg Met Ala Arg Thr Pro Gln Thr Val Ala Gly Tyr Thr
385             390             395             400

Ile Pro Pro Gly His Gln Val Cys Val Ser Pro Thr Val Asn Gln Arg
            405             410             415

Leu Lys Asp Ser Trp Val Glu Arg Leu Asp Phe Asn Pro Asp Arg Tyr
            420             425             430

Leu Gln Asp Asn Pro Ala Ser Gly Glu Lys Phe Ala Tyr Val Pro Phe
        435             440             445

Gly Ala Gly Arg His Arg Cys Ile Gly Glu Asn Phe Ala Tyr Val Gln
    450             455             460

Ile Lys Thr Ile Trp Ser Thr Met Leu Arg Leu Tyr Glu Phe Asp Leu
465             470             475             480

Ile Asp Gly Tyr Phe Pro Thr Val Asn Tyr Thr Thr Met Ile His Thr
            485             490             495

Pro Glu Asn Pro Val Ile Arg Tyr Lys Arg Arg Ser Lys
            500             505
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<400> 83
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<210> 84
<211> 90
<212> PRT
<213> Homo sapiens

<400> 84
Met Lys Leu Ser Val Cys Leu Leu Leu Val Thr Leu Ala Leu Cys Cys
1   5   10   15

Tyr Gln Ala Asn Ala Glu Phe Cys Pro Ala Leu Val Ser Glu Leu Leu
            20   25   30

Asp Phe Phe Phe Ile Ser Glu Pro Leu Phe Lys Leu Ser Leu Ala Lys
        35   40   45

Phe Asp Ala Pro Pro Glu Ala Val Ala Ala Lys Leu Gly Val Lys Arg
    50   55   60

Cys Thr Asp Gln Met Ser Leu Gln Lys Arg Ser Leu Ile Ala Glu Val
65   70   75   80

Leu Val Lys Ile Leu Lys Lys Cys Ser Val
                85   90

<210> 85
<211> 1780
<212> DNA
<213> Homo sapiens

<400> 85
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<210> 86
<211> 417
<212> PRT
<213> Homo sapiens

<400> 86
Met Arg Phe Ala Trp Thr Val Leu Leu Leu Gly Pro Leu Gln Leu Cys
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Ala Leu Val His Cys Ala Pro Pro Ala Ala Gly Gln Gln Gln Pro Pro
             20                  25                  30

Arg Glu Pro Pro Ala Ala Pro Gly Ala Trp Arg Gln Gln Ile Gln Trp
         35                  40                  45

Glu Asn Asn Gly Gln Val Phe Ser Leu Leu Ser Leu Gly Ser Gln Tyr
     50                  55                  60

Gln Pro Gln Arg Arg Arg Asp Pro Gly Ala Ala Val Pro Gly Ala Ala
 65                  70                  75                  80

Asn Ala Ser Ala Gln Gln Pro Arg Thr Pro Ile Leu Leu Ile Arg Asp
                 85                  90                  95

Asn Arg Thr Ala Ala Gly Arg Thr Arg Thr Ala Gly Ser Ser Gly Val
            100                 105                 110

Thr Ala Gly Arg Pro Arg Pro Thr Ala Arg His Trp Phe Gln Ala Gly
            115                 120                 125

Tyr Ser Thr Ser Arg Ala Arg Glu Ala Gly Pro Ser Arg Ala Glu Asn
        130                 135                 140

Gln Thr Ala Pro Gly Glu Val Pro Ala Leu Ser Asn Leu Arg Pro Pro
145                 150                 155                 160

Ser Arg Val Asp Gly Met Val Gly Asp Asp Pro Tyr Asn Pro Tyr Lys
                165                 170                 175

Tyr Ser Asp Asp Asn Pro Tyr Tyr Asn Tyr Tyr Asp Thr Tyr Glu Arg
            180                 185                 190

Pro Arg Pro Gly Gly Arg Tyr Arg Pro Gly Tyr Gly Thr Gly Tyr Phe
        195                 200                 205

Gln Tyr Gly Leu Pro Asp Leu Val Ala Asp Pro Tyr Tyr Ile Gln Ala
    210                 215                 220
```

122

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Ser Thr Tyr Val Gln Lys Met Ser Met Tyr Asn Leu Arg Cys Ala Ala
225             230             235                 240

Glu Glu Asn Cys Leu Ala Ser Thr Ala Tyr Arg Ala Asp Val Arg Asp
                245             250                 255

Tyr Asp His Arg Val Leu Leu Arg Phe Pro Gln Arg Val Lys Asn Gln
            260             265             270

Gly Thr Ser Asp Phe Leu Pro Ser Arg Pro Arg Tyr Ser Trp Glu Trp
        275             280             285

His Ser Cys His Gln His Tyr His Ser Met Asp Glu Phe Ser His Leu
    290             295             300

Tyr Leu Leu Asp Ala Asn Thr Gln Arg Arg Trp Ala Glu Gly His Lys
305             310             315                 320

Ala Ser Phe Cys Leu Glu Asp Thr Ser Cys Asp Tyr Gly Tyr His Arg
            325             330             335

Arg Phe Ala Cys Thr Ala His Thr Gln Gly Leu Ser Pro Gly Cys Tyr
            340             345             350

Asp Thr Tyr Gly Ala Asp Ile Asp Cys Gln Trp Ile Asp Ile Thr Asp
        355             360             365

Val Lys Pro Gly Asn Tyr Ile Leu Lys Val Ser Val Asn Pro Ser Tyr
    370             375             380

Leu Val Pro Glu Ser Asp Tyr Thr Asn Asn Val Val Arg Cys Asp Ile
385             390             395                 400

Arg Tyr Thr Gly His His Ala Tyr Ala Ser Gly Cys Thr Ile Ser Pro
            405             410             415

Tyr


<210> 87
<211> 1216
<212> DNA
<213> Homo sapiens

<400> 87
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gcttgaatta agaagaaaat tatggcatat attaaaagca ggcttctatg aaagactcaa 840
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123

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<210> 88
<211> 109
<212> PRT
<213> Homo sapiens

<400> 88
Met Lys Phe Ile Ser Thr Ser Leu Leu Leu Met Leu Leu Val Ser Ser
  1               5                  10                  15

Leu Ser Pro Val Gln Gly Val Leu Glu Val Tyr Tyr Thr Ser Leu Arg
            20                  25                  30

Cys Arg Cys Val Gln Glu Ser Ser Val Phe Ile Pro Arg Arg Phe Ile
            35                  40                  45

Asp Arg Ile Gln Ile Leu Pro Arg Gly Asn Gly Cys Pro Arg Lys Glu
        50                  55                  60

Ile Ile Val Trp Lys Lys Asn Lys Ser Ile Val Cys Val Asp Pro Gln
 65                  70                  75                  80

Ala Glu Trp Ile Gln Arg Met Met Glu Val Leu Arg Lys Arg Ser Ser
                85                  90                  95

Ser Thr Leu Pro Val Pro Val Phe Lys Arg Lys Ile Pro
            100                 105


<210> 89
<211> 576
<212> DNA
<213> Homo sapiens

<400> 89
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aatgacgaag tcactgcagt gcttgcagtt caaacagaat tgaaagaatg catggtggtt 240
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caaattgcag ccgtcgttga tgttattcgg gaattaggca tctgccctga tgatgctgct 420
gtaatcccca tcaaaaacaa ccggttttat actattgaaa tcctaaaggt agaataatgg 480
aagccctgtc tgtttgccac acccaggtga tttcctctaa agaaacttgg ctggaatttc 540
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<210> 90
<211> 145
<212> PRT
<213> Homo sapiens
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124

<400> 90
Met Arg Leu Leu Gln Leu Leu Phe Arg Ala Ser Pro Ala Thr Leu Leu
 1   5   10   15

Leu Val Leu Cys Leu Gln Leu Gly Ala Asn Lys Ala Gln Asp Asn Thr
             20   25   30

Arg Lys Ile Ile Ile Lys Asn Phe Asp Ile Pro Lys Ser Val Arg Pro
         35   40   45

Asn Asp Glu Val Thr Ala Val Leu Ala Val Gln Thr Glu Leu Lys Glu
     50   55   60

Cys Met Val Val Lys Thr Tyr Leu Ile Ser Ser Ile Pro Leu Gln Gly
 65   70   75   80

Ala Phe Asn Tyr Lys Tyr Thr Ala Cys Leu Cys Asp Asp Asn Pro Lys
                 85   90   95

Thr Phe Tyr Trp Asp Phe Tyr Thr Asn Arg Thr Val Gln Ile Ala Ala
             100   105   110

Val Val Asp Val Ile Arg Glu Leu Gly Ile Cys Pro Asp Asp Ala Ala
         115   120   125

Val Ile Pro Ile Lys Asn Asn Arg Phe Tyr Thr Ile Glu Ile Leu Lys
     130   135   140

Val
145

<210> 91
<211> 2340
<212> DNA
<213> Homo sapiens

<400> 91
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gctttttggg acaatatgtt tggaccgcga gattctcgag tcagagggtg gttcacgttg 180
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<210> 92
<211> 296
<212> PRT
<213> Homo sapiens

<400> 92

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Asn Met Phe Gly Pro Arg Asp Ser Arg Val Arg Gly Trp Phe Thr Leu
                20                  25                  30

Asp Ser Tyr Leu Pro Thr Phe Phe Leu Thr Val Met Tyr Leu Leu Ser
            35                  40                  45

Ile Trp Leu Gly Asn Lys Tyr Met Lys Asn Arg Pro Ala Leu Ser Leu
        50                  55                  60

Arg Gly Ile Leu Thr Leu Tyr Asn Leu Gly Ile Thr Leu Leu Ser Ala
65                  70                  75                  80

Tyr Met Leu Ala Glu Leu Ile Leu Ser Thr Trp Glu Gly Gly Tyr Asn
                85                  90                  95

Leu Gln Cys Gln Asp Leu Thr Ser Ala Gly Glu Ala Asp Ile Arg Val
            100                 105                 110

Ala Lys Val Leu Trp Trp Tyr Tyr Phe Ser Lys Ser Val Glu Phe Leu
            115                 120                 125

Asp Thr Ile Phe Phe Val Leu Arg Lys Lys Thr Ser Gln Ile Thr Phe
            130                 135                 140

Leu His Val Tyr His His Ala Ser Met Phe Asn Ile Trp Trp Cys Val
145                 150                 155                 160

Leu Asn Trp Ile Pro Cys Gly Gln Ser Phe Phe Gly Pro Thr Leu Asn
                165                 170                 175

Ser Phe Val His Ile Leu Met Tyr Ser Tyr Tyr Gly Leu Ser Val Phe
            180                 185                 190
```

126

```
Pro Ser Met His Lys Tyr Leu Trp Trp Lys Lys Tyr Leu Thr Gln Ala
        195                 200                 205

Gln Leu Val Gln Phe Val Leu Thr Ile Thr His Thr Met Ser Ala Val
        210                 215                 220

Val Lys Pro Cys Gly Phe Pro Phe Gly Cys Leu Ile Phe Gln Ser Ser
225                 230                 235                 240

Tyr Met Leu Thr Leu Val Ile Leu Phe Leu Asn Phe Tyr Val Gln Thr
                245                 250                 255

Tyr Arg Lys Lys Pro Met Lys Lys Asp Met Gln Glu Pro Pro Ala Gly
            260                 265                 270

Lys Glu Val Lys Asn Gly Phe Ser Lys Ala Tyr Phe Thr Ala Ala Asn
        275                 280                 285

Gly Val Met Asn Lys Lys Ala Gln
    290                 295


<210> 93
<211> 4321
<212> DNA
<213> Homo sapiens

<400> 93
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aagggacgca ccacgccagc cccagcccgg ctccagcgac agccaacgcc tcttgcagcg 180
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127

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<210> 94
<211> 919
<212> PRT
<213> Homo sapiens

<400> 94
Met Glu Val Gln Leu Gly Leu Gly Arg Val Tyr Pro Arg Pro Pro Ser
1   5   10   15

Lys Thr Tyr Arg Gly Ala Phe Gln Asn Leu Phe Gln Ser Val Arg Glu
            20   25   30

Val Ile Gln Asn Pro Gly Pro Arg His Pro Glu Ala Ala Ser Ala Ala
        35   40   45

Pro Pro Gly Ala Ser Leu Leu Leu Leu Gln Gln Gln Gln Gln Gln Gln
    50   55   60

128

```
Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Glu Thr
 65              70                  75                      80

Ser Pro Arg Gln Gln Gln Gln Gln Gln Gly Glu Asp Gly Ser Pro Gln
                 85                  90                  95

Ala His Arg Arg Gly Pro Thr Gly Tyr Leu Val Leu Asp Glu Glu Gln
                100                 105                 110

Gln Pro Ser Gln Pro Gln Ser Ala Leu Glu Cys His Pro Glu Arg Gly
            115                 120                 125

Cys Val Pro Glu Pro Gly Ala Ala Val Ala Ala Ser Lys Gly Leu Pro
    130                 135                 140

Gln Gln Leu Pro Ala Pro Pro Asp Glu Asp Asp Ser Ala Ala Pro Ser
145                 150                 155                 160

Thr Leu Ser Leu Leu Gly Pro Thr Phe Pro Gly Leu Ser Ser Cys Ser
                165                 170                 175

Ala Asp Leu Lys Asp Ile Leu Ser Glu Ala Ser Thr Met Gln Leu Leu
            180                 185                 190

Gln Gln Gln Gln Gln Glu Ala Val Ser Glu Gly Ser Ser Ser Gly Arg
            195                 200                 205

Ala Arg Glu Ala Ser Gly Ala Pro Thr Ser Ser Lys Asp Asn Tyr Leu
    210                 215                 220

Gly Gly Thr Ser Thr Ile Ser Asp Asn Ala Lys Glu Leu Cys Lys Ala
225                 230                 235                 240

Val Ser Val Ser Met Gly Leu Gly Val Glu Ala Leu Glu His Leu Ser
                245                 250                 255

Pro Gly Glu Gln Leu Arg Gly Asp Cys Met Tyr Ala Pro Leu Leu Gly
            260                 265                 270

Val Pro Pro Ala Val Arg Pro Thr Pro Cys Ala Pro Leu Ala Glu Cys
    275                 280                 285

Lys Gly Ser Leu Leu Asp Asp Ser Ala Gly Lys Ser Thr Glu Asp Thr
    290                 295                 300

Ala Glu Tyr Ser Pro Phe Lys Gly Gly Tyr Thr Lys Gly Leu Glu Gly
305                 310                 315                 320

Glu Ser Leu Gly Cys Ser Gly Ser Ala Ala Ala Gly Ser Ser Gly Thr
            325                 330                 335

Leu Glu Leu Pro Ser Thr Leu Ser Leu Tyr Lys Ser Gly Ala Leu Asp
            340                 345                 350

Glu Ala Ala Ala Tyr Gln Ser Arg Asp Tyr Tyr Asn Phe Pro Leu Ala
    355                 360                 365

Leu Ala Gly Pro Pro Pro Pro Pro Pro Pro His Pro His Ala Arg
    370                 375                 380
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129

```
Ile Lys Leu Glu Asn Pro Leu Asp Tyr Gly Ser Ala Trp Ala Ala Ala
385                 390             395                     400

Ala Ala Gln Cys Arg Tyr Gly Asp Leu Ala Ser Leu His Gly Ala Gly
                405             410                 415

Ala Ala Gly Pro Gly Ser Gly Ser Pro Ser Ala Ala Ala Ser Ser Ser
            420             425                 430

Trp His Thr Leu Phe Thr Ala Glu Glu Gly Gln Leu Tyr Gly Pro Cys
        435             440                 445

Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
    450             455                 460

Gly Gly Gly Gly Gly Gly Gly Gly Glu Ala Gly Ala Val Ala Pro Tyr
465             470             475                     480

Gly Tyr Thr Arg Pro Pro Gln Gly Leu Ala Gly Gln Glu Ser Asp Phe
            485             490                 495

Thr Ala Pro Asp Val Trp Tyr Pro Gly Gly Met Val Ser Arg Val Pro
            500             505                 510

Tyr Pro Ser Pro Thr Cys Val Lys Ser Glu Met Gly Pro Trp Met Asp
        515             520                 525

Ser Tyr Ser Gly Pro Tyr Gly Asp Met Arg Leu Glu Thr Ala Arg Asp
    530             535                 540

His Val Leu Pro Ile Asp Tyr Tyr Phe Pro Pro Gln Lys Thr Cys Leu
545             550             555                     560

Ile Cys Gly Asp Glu Ala Ser Gly Cys His Tyr Gly Ala Leu Thr Cys
            565             570                 575

Gly Ser Cys Lys Val Phe Phe Lys Arg Ala Ala Glu Gly Lys Gln Lys
        580             585                 590

Tyr Leu Cys Ala Ser Arg Asn Asp Cys Thr Ile Asp Lys Phe Arg Arg
        595             600                 605

Lys Asn Cys Pro Ser Cys Arg Leu Arg Lys Cys Tyr Glu Ala Gly Met
    610             615                 620

Thr Leu Gly Ala Arg Lys Leu Lys Lys Leu Gly Asn Leu Lys Leu Gln
625             630             635                     640

Glu Glu Gly Glu Ala Ser Ser Thr Thr Ser Pro Thr Glu Glu Thr Thr
            645             650                 655

Gln Lys Leu Thr Val Ser His Ile Glu Gly Tyr Glu Cys Gln Pro Ile
        660             665                 670

Phe Leu Asn Val Leu Glu Ala Ile Glu Pro Gly Val Val Cys Ala Gly
        675             680                 685

His Asp Asn Asn Gln Pro Asp Ser Phe Ala Ala Leu Leu Ser Ser Leu
    690             695                 700
```

130

```
Asn Glu Leu Gly Glu Arg Gln Leu Val His Val Val Lys Trp Ala Lys
705                 710             715                 720

Ala Leu Pro Gly Phe Arg Asn Leu His Val Asp Asp Gln Met Ala Val
                725             730             735

Ile Gln Tyr Ser Trp Met Gly Leu Met Val Phe Ala Met Gly Trp Arg
            740             745             750

Ser Phe Thr Asn Val Asn Ser Arg Met Leu Tyr Phe Ala Pro Asp Leu
        755             760             765

Val Phe Asn Glu Tyr Arg Met His Lys Ser Arg Met Tyr Ser Gln Cys
    770             775             780

Val Arg Met Arg His Leu Ser Gln Glu Phe Gly Trp Leu Gln Ile Thr
785             790             795                 800

Pro Gln Glu Phe Leu Cys Met Lys Ala Leu Leu Leu Phe Ser Ile Ile
            805             810             815

Pro Val Asp Gly Leu Lys Asn Gln Lys Phe Phe Asp Glu Leu Arg Met
            820             825             830

Asn Tyr Ile Lys Glu Leu Asp Arg Ile Ile Ala Cys Lys Arg Lys Asn
        835             840             845

Pro Thr Ser Cys Ser Arg Arg Phe Tyr Gln Leu Thr Lys Leu Leu Asp
    850             855             860

Ser Val Gln Pro Ile Ala Arg Glu Leu His Gln Phe Thr Phe Asp Leu
865             870             875                 880

Leu Ile Lys Ser His Met Val Ser Val Asp Phe Pro Glu Met Met Ala
            885             890             895

Glu Ile Ile Ser Val Gln Val Pro Lys Ile Leu Ser Gly Lys Val Lys
        900             905             910

Pro Ile Tyr Phe His Thr Gln
        915


<210> 95
<211> 2119
<212> DNA
<213> Homo sapiens

<400> 95
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136

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<210> 98
<211> 1444
<212> PRT
<213> Homo sapiens

<400> 98
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Met Ala Ser Leu Ala Ala Leu Ala Leu Ser Leu Leu Leu Arg Leu Gln
  1               5                  10                  15

Leu Pro Pro Leu Pro Gly Ala Arg Ala Gln Ser Ala Pro Gly Gly Cys
             20                  25                  30

Ser Phe Asp Glu His Tyr Ser Asn Cys Gly Tyr Ser Val Ala Leu Gly
         35                  40                  45

Thr Asn Gly Phe Thr Trp Glu Gln Ile Asn Thr Thr Glu Lys Pro Met
     50                  55                  60

Leu Asp Gln Ala Val Pro Thr Gly Ser Phe Met Met Val Asn Ser Ser
 65                  70                  75                  80

Gly Arg Ala Ser Gly Gln Lys Ala His Leu Leu Leu Pro Thr Leu Lys
                 85                  90                  95

Glu Asn Asp Thr His Cys Ile Asp Phe His Tyr Tyr Phe Ser Ser Arg
            100                 105                 110

Asp Arg Ser Ser Pro Gly Ala Leu Asn Val Tyr Val Lys Val Asn Gly
        115                 120                 125
```

137

```
Gly Pro Gln Gly Asn Pro Val Trp Asn Val Ser Gly Val Val Thr Glu
    130                 135                 140

Gly Trp Val Lys Ala Glu Leu Ala Ile Ser Thr Phe Trp Pro His Phe
145                 150                 155                 160

Tyr Gln Val Ile Phe Glu Ser Val Ser Leu Lys Gly His Pro Gly Tyr
                165                 170                 175

Ile Ala Val Asp Glu Val Arg Val Leu Ala His Pro Cys Arg Lys Ala
                180                 185                 190

Pro His Phe Leu Arg Leu Gln Asn Val Glu Val Asn Val Gly Gln Asn
            195                 200                 205

Ala Thr Phe Gln Cys Ile Ala Gly Gly Lys Trp Ser Gln His Asp Lys
    210                 215                 220

Leu Trp Leu Gln Gln Trp Asn Gly Arg Asp Thr Ala Leu Met Val Thr
225                 230                 235                 240

Arg Val Val Asn His Arg Arg Phe Ser Ala Thr Val Ser Val Ala Asp
                245                 250                 255

Thr Ala Gln Arg Ser Val Ser Lys Tyr Arg Cys Val Ile Arg Ser Asp
            260                 265                 270

Gly Gly Ser Gly Val Ser Asn Tyr Ala Glu Leu Ile Val Lys Glu Pro
            275                 280                 285

Pro Thr Pro Ile Ala Pro Pro Glu Leu Leu Ala Val Gly Ala Thr Tyr
    290                 295                 300

Leu Trp Ile Lys Pro Asn Ala Asn Ser Ile Ile Gly Asp Gly Pro Ile
305                 310                 315                 320

Ile Leu Lys Glu Val Glu Tyr Arg Thr Thr Thr Gly Thr Trp Ala Glu
                325                 330                 335

Thr His Ile Val Asp Ser Pro Asn Tyr Lys Leu Trp His Leu Asp Pro
            340                 345                 350

Asp Val Glu Tyr Glu Ile Arg Val Leu Leu Thr Arg Pro Gly Glu Gly
            355                 360                 365

Gly Thr Gly Pro Pro Gly Ala Pro Leu Thr Thr Arg Thr Lys Cys Ala
    370                 375                 380

Asp Pro Val His Gly Pro Gln Asn Val Glu Ile Val Asp Ile Arg Ala
385                 390                 395                 400

Arg Gln Leu Thr Leu Gln Trp Glu Pro Phe Gly Tyr Ala Val Thr Arg
            405                 410                 415

Cys His Ser Tyr Asn Leu Thr Val Gln Tyr Gln Tyr Val Phe Asn Gln
            420                 425                 430

Gln Gln Tyr Glu Ala Glu Glu Val Ile Gln Thr Ser Ser His Tyr Thr
    435                 440                 445
```

138

```
Leu Arg Gly Leu Arg Pro Phe Met Thr Ile Arg Leu Arg Leu Leu Leu
    450             455             460

Ser Asn Pro Glu Gly Arg Met Glu Ser Glu Glu Leu Val Val Gln Thr
465             470             475             480

Glu Glu Asp Val Pro Gly Ala Val Pro Leu Glu Ser Ile Gln Gly Gly
            485             490             495

Pro Phe Glu Glu Lys Ile Tyr Ile Gln Trp Lys Pro Pro Asn Glu Thr
        500             505             510

Asn Gly Val Ile Thr Leu Tyr Glu Ile Asn Tyr Lys Ala Val Gly Ser
        515             520             525

Leu Asp Pro Ser Ala Asp Leu Ser Ser Gln Arg Gly Lys Val Phe Lys
    530             535             540

Leu Arg Asn Glu Thr His His Leu Phe Val Gly Leu Tyr Pro Gly Thr
545             550             555             560

Thr Tyr Ser Phe Thr Ile Lys Ala Ser Thr Ala Lys Gly Phe Gly Pro
            565             570             575

Pro Val Thr Thr Arg Ile Ala Thr Lys Ile Ser Ala Pro Ser Met Pro
        580             585             590

Glu Tyr Asp Thr Asp Thr Pro Leu Asn Glu Thr Asp Thr Thr Ile Thr
    595             600             605

Val Met Leu Lys Pro Ala Gln Ser Arg Gly Ala Pro Val Ser Val Tyr
    610             615             620

Gln Leu Val Val Lys Glu Glu Arg Leu Gln Lys Ser Arg Arg Ala Ala
625             630             635             640

Asp Ile Ile Glu Cys Phe Ser Val Pro Val Ser Tyr Arg Asn Ala Ser
            645             650             655

Ser Leu Asp Ser Leu His Tyr Phe Ala Ala Glu Leu Lys Pro Ala Asn
        660             665             670

Leu Pro Val Thr Gln Pro Phe Thr Val Gly Asp Asn Lys Thr Tyr Asn
        675             680             685

Gly Tyr Trp Asn Pro Pro Leu Ser Pro Leu Lys Ser Tyr Ser Ile Tyr
    690             695             700

Phe Gln Ala Leu Ser Lys Ala Asn Gly Glu Thr Lys Ile Asn Cys Val
705             710             715             720

Arg Leu Ala Thr Thr Gly Ala Ser Thr Gln Asn Ser Asn Thr Val Glu
            725             730             735

Pro Glu Lys Gln Val Asp Asn Thr Val Lys Met Ala Gly Val Ile Ala
        740             745             750

Gly Leu Leu Met Phe Ile Ile Ile Leu Leu Gly Val Met Leu Thr Ile
        755             760             765
```

139

```
Lys Arg Arg Arg Asn Ala Tyr Ser Tyr Ser Tyr Tyr Leu Ser Gln Arg
    770             775             780

Lys Leu Ala Lys Lys Gln Lys Glu Thr Gln Ser Gly Ala Gln Arg Glu
785             790             795                         800

Met Gly Pro Val Ala Ser Ala Asp Lys Pro Thr Thr Lys Leu Ser Ala
            805             810             815

Ser Arg Asn Asp Glu Gly Phe Ser Ser Ser Ser Gln Asp Val Asn Gly
            820             825             830

Phe Thr Asp Gly Ser Arg Gly Glu Leu Ser Gln Pro Thr Leu Thr Ile
        835             840             845

Gln Thr His Pro Tyr Arg Thr Cys Asp Pro Val Glu Met Ser Tyr Pro
    850             855             860

Arg Asp Gln Phe Gln Leu Ala Ile Arg Val Ala Asp Leu Leu Gln His
865             870             875                         880

Ile Thr Gln Met Lys Arg Gly Gln Gly Tyr Gly Phe Lys Glu Glu Tyr
            885             890             895

Glu Ala Leu Pro Glu Gly Gln Thr Ala Ser Trp Asp Thr Ala Lys Glu
            900             905             910

Asp Glu Asn Arg Asn Lys Asn Arg Tyr Gly Asn Ile Ile Ser Tyr Asp
            915             920             925

His Ser Arg Val Arg Leu Leu Val Leu Asp Gly Asp Pro His Ser Asp
    930             935             940

Tyr Ile Asn Ala Asn Tyr Ile Asp Gly Tyr His Arg Pro Arg His Tyr
945             950             955                         960

Ile Ala Thr Gln Gly Pro Met Gln Glu Thr Val Lys Asp Phe Trp Arg
            965             970             975

Met Ile Trp Gln Glu Asn Ser Ala Ser Ile Val Met Val Thr Asn Leu
            980             985             990

Val Glu Val Gly Arg Val Lys Cys Val Arg Tyr Trp Pro Asp Asp Thr
        995             1000            1005

Glu Val Tyr Gly Asp Ile Lys Val Thr Leu Ile Glu Thr Glu Pro Leu
    1010            1015            1020

Ala Glu Tyr Val Ile Arg Thr Phe Thr Val Gln Lys Lys Gly Tyr His
1025            1030            1035                        1040

Glu Ile Arg Glu Leu Arg Leu Phe His Phe Thr Ser Trp Pro Asp His
            1045            1050            1055

Gly Val Pro Cys Tyr Ala Thr Gly Leu Leu Gly Phe Val Arg Gln Val
        1060            1065            1070

Lys Phe Leu Asn Pro Pro Glu Ala Gly Pro Ile Val Val His Cys Ser
        1075            1080            1085
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140

Ala Gly Ala Gly Arg Thr Gly Cys Phe Ile Ala Ile Asp Thr Met Leu
    1090   1095   1100

Asp Met Ala Glu Asn Glu Gly Val Val Asp Ile Phe Asn Cys Val Arg
1105   1110   1115   1120

Glu Leu Arg Ala Gln Arg Val Asn Leu Val Gln Thr Glu Glu Gln Tyr
              1125   1130   1135

Val Phe Val His Asp Ala Ile Leu Glu Ala Cys Leu Cys Gly Asn Thr
              1140   1145   1150

Ala Ile Pro Val Cys Glu Phe Arg Ser Leu Tyr Tyr Asn Ile Ser Arg
         1155   1160   1165

Leu Asp Pro Gln Thr Asn Ser Ser Gln Ile Lys Asp Glu Phe Gln Thr
    1170   1175   1180

Leu Asn Ile Val Thr Pro Arg Val Arg Pro Glu Asp Cys Ser Ile Gly
1185   1190   1195   1200

Leu Leu Pro Arg Asn His Asp Lys Asn Arg Ser Met Asp Val Leu Pro
              1205   1210   1215

Leu Asp Arg Cys Leu Pro Phe Leu Ile Ser Val Asp Gly Glu Ser Ser
         1220   1225   1230

Asn Tyr Ile Asn Ala Ala Leu Met Asp Ser His Lys Gln Pro Ala Ala
         1235   1240   1245

Phe Val Val Thr Gln His Pro Leu Pro Asn Thr Val Ala Asp Phe Trp
    1250   1255   1260

Arg Leu Val Phe Asp Tyr Asn Cys Ser Ser Val Val Met Leu Asn Glu
1265   1270   1275   1280

Met Asp Thr Ala Gln Phe Cys Met Gln Tyr Trp Pro Glu Lys Thr Ser
              1285   1290   1295

Gly Cys Tyr Gly Pro Ile Gln Val Glu Phe Val Ser Ala Asp Ile Asp
         1300   1305   1310

Glu Asp Ile Ile His Arg Ile Phe Arg Ile Cys Asn Met Ala Arg Pro
    1315   1320   1325

Gln Asp Gly Tyr Arg Ile Val Gln His Leu Gln Tyr Ile Gly Trp Pro
    1330   1335   1340

Ala Tyr Arg Asp Thr Pro Pro Ser Lys Arg Ser Leu Leu Lys Val Val
1345   1350   1355   1360

Arg Arg Leu Glu Lys Trp Gln Glu Gln Tyr Asp Gly Arg Glu Gly Arg
              1365   1370   1375

Thr Val Val His Cys Leu Asn Gly Gly Gly Arg Ser Gly Thr Phe Cys
              1380   1385   1390

Ala Ile Cys Ser Val Cys Glu Met Ile Gln Gln Gln Asn Ile Ile Asp
    1395   1400   1405

141

Val Phe His Ile Val Lys Thr Leu Arg Asn Asn Lys Ser Asn Met Val
    1410   1415   1420

Glu Thr Leu Glu Gln Tyr Lys Phe Val Tyr Glu Val Ala Leu Glu Tyr
1425   1430   1435   1440

Leu Ser Ser Phe

<210> 99
<211> 803
<212> DNA
<213> Homo sapiens

<400> 99
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ctgctcctgt gcacaagttg gtaccaacaa agagctctgc tgcctcgtct ataccctctg 180
gcagattcca caaaagttca tagttgacta ttctgaaacc agcccccagt gccccaagcc 240
aggtgtcatc ctcctaacca agagaggccg gcagatctgt gctgacccca ataagaagtg 300
ggtccagaaa tacatcagcg acctgaagct gaatgcctga ggggcctgga agctgcgagg 360
gcccagtgaa cttggtgggc ccaggaggga acaggagcct gagccagggc aatggccctg 420
ccaccctgga ggccacctct tctaagagtc ccatctgcta tgcccagcca cattaactaa 480
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ttcccttcaa ctcttcgtac attcaatgca tggatcaatc agtgtgatta gctttctcag 660
cagacattgt gccatatgta tcaaatgaca aatctttatt gaatggtttt gctcagcacc 720
acctttaat atattggcag tacttattat ataaaggta aaccagcatt ctcactgtga 780
aaaaaaaaa aaaaaaaaa aaa   803

<210> 100
<211> 89
<212> PRT
<213> Homo sapiens

<400> 100
Met Lys Gly Leu Ala Ala Ala Leu Leu Val Leu Val Cys Thr Met Ala
  1   5   10   15

Leu Cys Ser Cys Ala Gln Val Gly Thr Asn Lys Glu Leu Cys Cys Leu
            20   25   30

Val Tyr Thr Ser Trp Gln Ile Pro Gln Lys Phe Ile Val Asp Tyr Ser
        35   40   45

Glu Thr Ser Pro Gln Cys Pro Lys Pro Gly Val Ile Leu Leu Thr Lys
      50   55   60

Arg Gly Arg Gln Ile Cys Ala Asp Pro Asn Lys Lys Trp Val Gln Lys
 65   70   75   80

Tyr Ile Ser Asp Leu Lys Leu Asn Ala
                85

<210> 101
<211> 2398
<212> DNA
<213> Homo sapiens

142

<400> 101
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cgagtggagc ggaggacccg agcggctgag gagagaggag gcggcggctt agctgctacg 180
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tatgacatca aagatagact tttgcctaag tggcttagct gggtctttca tagccaaact 2340
tgtatattta aattctttgt aataataata tccaaatcat caaaaaaaaa aaaaaaaa 2398

<210> 102
<211> 553
<212> PRT
<213> Homo sapiens

<400> 102
Met Pro Leu Pro Trp Ser Leu Ala Leu Pro Leu Leu Leu Ser Trp Val
1   5   10   15

Ala Gly Gly Phe Gly Asn Ala Ala Ser Ala Arg His His Gly Leu Leu
                20   25   30

Ala Ser Ala Arg Gln Pro Gly Val Cys His Tyr Gly Thr Lys Leu Ala
            35   40   45

Cys Cys Tyr Gly Trp Arg Arg Asn Ser Lys Gly Val Cys Glu Ala Thr
        50   55   60

143

```
Cys Glu Pro Gly Cys Lys Phe Gly Glu Cys Val Gly Pro Asn Lys Cys
65                  70                  75                  80

Arg Cys Phe Pro Gly Tyr Thr Gly Lys Thr Cys Ser Gln Asp Val Asn
             85                  90                  95

Glu Cys Gly Met Lys Pro Arg Pro Cys Gln His Arg Cys Val Asn Thr
            100             105             110

His Gly Ser Tyr Lys Cys Phe Cys Leu Ser Gly His Met Leu Met Pro
        115             120             125

Asp Ala Thr Cys Val Asn Ser Arg Thr Cys Ala Met Ile Asn Cys Gln
    130             135             140

Tyr Ser Cys Glu Asp Thr Glu Glu Gly Pro Gln Cys Leu Cys Pro Ser
145             150             155             160

Ser Gly Leu Arg Leu Ala Pro Asn Gly Arg Asp Cys Leu Asp Ile Asp
            165             170             175

Glu Cys Ala Ser Gly Lys Val Ile Cys Pro Tyr Asn Arg Arg Cys Val
            180             185             190

Asn Thr Phe Gly Ser Tyr Tyr Cys Lys Cys His Ile Gly Phe Glu Leu
    195             200             205

Gln Tyr Ile Ser Gly Arg Tyr Asp Cys Ile Asp Ile Asn Glu Cys Thr
    210             215             220

Met Asp Ser His Thr Cys Ser His His Ala Asn Cys Phe Asn Thr Gln
225             230             235             240

Gly Ser Phe Lys Cys Lys Cys Lys Gln Gly Tyr Lys Gly Asn Gly Leu
            245             250             255

Arg Cys Ser Ala Ile Pro Glu Asn Ser Val Lys Glu Val Leu Arg Ala
            260             265             270

Pro Gly Thr Ile Lys Asp Arg Ile Lys Lys Leu Leu Ala His Lys Asn
    275             280             285

Ser Met Lys Lys Lys Ala Lys Ile Lys Asn Val Thr Pro Glu Pro Thr
    290             295             300

Arg Thr Pro Thr Pro Lys Val Asn Leu Gln Pro Phe Asn Tyr Glu Glu
305             310             315             320

Ile Val Ser Arg Gly Gly Asn Ser His Gly Gly Lys Lys Gly Asn Glu
            325             330             335

Glu Lys Met Lys Glu Gly Leu Glu Asp Glu Lys Arg Glu Glu Lys Ala
            340             345             350

Leu Lys Asn Asp Ile Glu Glu Arg Ser Leu Arg Gly Asp Val Phe Phe
        355             360             365

Pro Lys Val Asn Glu Ala Gly Glu Phe Gly Leu Ile Leu Val Gln Arg
    370             375             380
```

144

```
Lys Ala Leu Thr Ser Lys Leu Glu His Lys Asp Leu Asn Ile Ser Val
385               390               395               400

Asp Cys Ser Phe Asn His Gly Ile Cys Asp Trp Lys Gln Asp Arg Glu
                405               410               415

Asp Asp Phe Asp Trp Asn Pro Ala Asp Arg Asp Asn Ala Ile Gly Phe
            420               425               430

Tyr Met Ala Val Pro Ala Leu Ala Gly His Lys Lys Asp Ile Gly Arg
        435               440               445

Leu Lys Leu Leu Leu Pro Asp Leu Gln Pro Gln Ser Asn Phe Cys Leu
    450               455               460

Leu Phe Asp Tyr Arg Leu Ala Gly Asp Lys Val Gly Lys Leu Arg Val
465               470               475               480

Phe Val Lys Asn Ser Asn Asn Ala Leu Ala Trp Glu Lys Thr Thr Ser
            485               490               495

Glu Asp Glu Lys Trp Lys Thr Gly Lys Ile Gln Leu Tyr Gln Gly Thr
            500               505               510

Asp Ala Thr Lys Ser Ile Ile Phe Glu Ala Glu Arg Gly Lys Gly Lys
        515               520               525

Thr Gly Glu Ile Ala Val Asp Gly Val Leu Leu Val Ser Gly Leu Cys
    530               535               540

Pro Asp Ser Leu Leu Ser Val Asp Asp
545               550
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<210> 103
<211> 1120
<212> DNA
<213> Homo sapiens

<400> 103
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agcaccatga atcaaactgc gattctgatt tgctgcctta tctttctgac tctaagtggc  120
attcaaggag tacctctctc tagaaccgta cgctgtacct gcatcagcat tagtaatcaa  180
cctgttaatc caaggtcttt agaaaaactt gaaattattc ctgcaagcca attttgtcca  240
cgtgttgaga tcattgctac aatgaaaaag aagggtgaga agagatgtct gaatccagaa  300
tcgaaggcca tcaagaattt actgaaagca gttagcaagg aaatgtctaa aagatctcct  360
taaaaccaga ggggagcaaa atcgatgcag tgcttccaag gatggaccac acagaggctg  420
cctctcccat cacttcccta catggagtat atgtcaagcc ataattgttc ttagtttgca  480
gttacactaa aaggtgacca atgatggtca ccaaatcagc tgctactact cctgtaggaa  540
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Ile Ser Ile Ser Asn Gln Pro Val Asn Pro Arg Ser Leu Glu Lys Leu
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Thr Met Lys Lys Lys Gly Glu Lys Arg Cys Leu Asn Pro Glu Ser Lys
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<213> Homo sapiens

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Gln Val Gln Lys Leu Thr Glu Glu Asn Thr Thr Leu Arg Glu Gln Val
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Glu Pro Thr Pro Glu Asp Glu Asp Asp Ile Glu Leu Arg Gly Ala
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Ala Ala Ala Ala Ala Pro Pro Pro Pro Ile Glu Glu Glu Cys Pro Glu
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Asp Leu Pro Glu Lys Phe Asp Gly Asn Pro Asp Met Leu Ala Pro Phe
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Met Ala Gln Cys Gln Ile Phe Met Glu Lys Ser Thr Arg Asp Phe Ser
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Val Asp Arg Val Arg Val Cys Phe Val Thr Ser Met Met Thr Gly Arg
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Ala Ala Arg Trp Ala Ser Ala Lys Leu Glu Arg Ser His Tyr Leu Met
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His Asn Tyr Pro Ala Phe Met Met Glu Met Lys His Val Phe Glu Asp
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Pro Gln Arg Arg Glu Val Ala Lys Arg Lys Ile Arg Arg Leu Arg Gln
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Gly Met Gly Ser Val Ile Asp Tyr Ser Asn Ala Phe Gln Met Ile Ala
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148

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Lys Ser Leu Ser Ala Leu Ile Gly Gln Cys Ile His Ile Glu Arg Arg
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Leu Ala Arg Ala Ala Ala Ala Arg Lys Pro Arg Ser Pro Pro Arg Ala
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Leu Val Leu Pro His Ile Ala Ser His His Gln Val Asp Pro Thr Glu
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Pro Val Gly Gly Ala Arg Met Arg Leu Thr Gln Glu Glu Lys Glu Arg
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Arg Arg Lys Leu Asn Leu Cys Leu Tyr Cys Gly Thr Gly Gly His Tyr
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<212> PRT
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Gln Ile Asp Val Tyr Glu Ala Arg Glu Asp Thr Arg Val Ala Thr Phe
            35   40   45

Thr Arg Gly Arg Ser Ile Asn Leu Ala Leu Ser His Arg Gly Arg Gln
    50   55   60

Ala Leu Lys Ala Val Gly Leu Glu Asp Gln Ile Val Ser Gln Gly Ile
65   70   75   80

Pro Met Arg Ala Arg Met Ile His Ser Leu Ser Gly Lys Lys Ser Ala
                85   90   95

Ile Pro Tyr Gly Thr Lys Ser Gln Tyr Ile Leu Ser Val Ser Arg Glu
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Asn Leu Asn Lys Asp Leu Leu Thr Ala Ala Glu Lys Tyr Pro Asn Val
            115   120   125

Lys Met His Phe Asn His Arg Leu Leu Lys Cys Asn Pro Glu Glu Gly
    130   135   140

Met Ile Thr Val Leu Gly Ser Asp Lys Val Pro Lys Asp Val Thr Cys
145   150   155   160

Asp Leu Ile Val Gly Cys Asp Gly Ala Tyr Ser Thr Val Arg Ser His
            165   170   175

Leu Met Lys Lys Pro Arg Phe Asp Tyr Ser Gln Gln Tyr Ile Pro His
            180   185   190

Gly Tyr Met Glu Leu Thr Ile Pro Pro Lys Asn Gly Asp Tyr Ala Met
            195   200   205

Glu Pro Asn Tyr Leu His Ile Trp Pro Arg Asn Thr Phe Met Met Ile
    210   215   220

Ala Leu Pro Asn Met Asn Lys Ser Phe Thr Cys Thr Leu Phe Met Pro
225   230   235   240

Phe Glu Glu Phe Glu Lys Leu Leu Thr Ser Asn Asp Val Val Asp Phe
            245   250   255

Phe Gln Lys Tyr Phe Pro Asp Ala Ile Pro Leu Ile Gly Glu Lys Leu
            260   265   270

Leu Val Gln Asp Phe Phe Leu Leu Pro Ala Gln Pro Met Ile Ser Val
            275   280   285

151

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Lys Cys Ser Ser Phe His Phe Lys Ser His Cys Val Leu Leu Gly Asp
    290                 295             300

Ala Ala His Ala Ile Val Pro Phe Phe Gly Gln Gly Met Asn Ala Gly
305                 310                 315                 320

Phe Glu Asp Cys Leu Val Phe Asp Glu Leu Met Asp Lys Phe Ser Asn
            325                 330                 335

Asp Leu Ser Leu Cys Leu Pro Val Phe Ser Arg Leu Arg Ile Pro Asp
            340                 345                 350

Asp His Ala Ile Ser Asp Leu Ser Met Tyr Asn Tyr Ile Glu Met Arg
        355                 360                 365

Ala His Val Asn Ser Ser Trp Phe Ile Phe Gln Lys Asn Met Glu Arg
    370                 375                 380

Phe Leu His Ala Ile Met Pro Ser Thr Phe Ile Pro Leu Tyr Thr Met
385                 390                 395                 400

Val Thr Phe Ser Arg Ile Arg Tyr His Glu Ala Val Gln Arg Trp His
            405                 410                 415

Trp Gln Lys Lys Val Ile Asn Lys Gly Leu Phe Phe Leu Gly Ser Leu
        420                 425                 430

Ile Ala Ile Ser Ser Thr Tyr Leu Leu Ile His Tyr Met Ser Pro Arg
        435                 440                 445

Ser Phe Leu Cys Leu Arg Arg Pro Trp Asn Trp Ile Ala His Phe Arg
    450                 455                 460

Asn Thr Thr Cys Phe Pro Ala Lys Ala Val Asp Ser Leu Glu Gln Ile
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Ser Asn Leu Ile Ser Arg
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<210> 109
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<212> DNA
<213> Homo sapiens

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<210> 110
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<212> PRT
<213> Homo sapiens

<400> 110
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Met Ser Val Trp Thr Ser Pro Arg Arg Leu Val Glu Leu Ala Gly Gln
             20                  25                  30

Ser Leu Leu Lys Asp Glu Ala Leu Ala Ile Ala Ala Leu Glu Leu Leu
         35                  40                  45

Pro Arg Glu Leu Phe Pro Pro Leu Phe Met Ala Ala Phe Asp Gly Arg
     50                  55                  60

His Ser Gln Thr Leu Lys Ala Met Val Gln Ala Trp Pro Phe Thr Cys
 65                  70                  75                  80

Leu Pro Leu Gly Val Leu Met Lys Gly Gln His Leu His Leu Glu Thr
                 85                  90                  95

Phe Lys Ala Val Leu Asp Gly Leu Asp Val Leu Leu Ala Gln Glu Val
                100                 105                 110

Arg Pro Arg Arg Trp Lys Leu Gln Val Leu Asp Leu Arg Lys Asn Ser
         115                 120                 125

His Gln Asp Phe Trp Thr Val Trp Ser Gly Asn Arg Ala Ser Leu Tyr
     130                 135                 140

Ser Phe Pro Glu Pro Glu Ala Ala Gln Pro Met Thr Lys Lys Arg Lys
145                 150                 155                 160

Val Asp Gly Leu Ser Thr Glu Ala Glu Gln Pro Phe Ile Pro Val Glu
                165                 170                 175
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Val Leu Val Asp Leu Phe Leu Lys Glu Gly Ala Cys Asp Glu Leu Phe
            180   185   190

Ser Tyr Leu Ile Glu Lys Val Lys Arg Lys Lys Asn Val Leu Arg Leu
            195   200   205

Cys Cys Lys Lys Leu Lys Ile Phe Ala Met Pro Met Gln Asp Ile Lys
    210   215   220

Met Ile Leu Lys Met Val Gln Leu Asp Ser Ile Glu Asp Leu Glu Val
225   230   235   240

Thr Cys Thr Trp Lys Leu Pro Thr Leu Ala Lys Phe Ser Pro Tyr Leu
                245   250   255

Gly Gln Met Ile Asn Leu Arg Arg Leu Leu Leu Ser His Ile His Ala
            260   265   270

Ser Ser Tyr Ile Ser Pro Glu Lys Glu Glu Gln Tyr Ile Ala Gln Phe
            275   280   285

Thr Ser Gln Phe Leu Ser Leu Gln Cys Leu Gln Ala Leu Tyr Val Asp
    290   295   300

Ser Leu Phe Phe Leu Arg Gly Arg Leu Asp Gln Leu Leu Arg His Val
305   310   315   320

Met Asn Pro Leu Glu Thr Leu Ser Ile Thr Asn Cys Arg Leu Ser Glu
            325   330   335

Gly Asp Val Met His Leu Ser Gln Ser Pro Ser Val Ser Gln Leu Ser
            340   345   350

Val Leu Ser Leu Ser Gly Val Met Leu Thr Asp Val Ser Pro Glu Pro
    355   360   365

Leu Gln Ala Leu Leu Glu Arg Ala Ser Ala Thr Leu Gln Asp Leu Val
    370   375   380

Phe Asp Glu Cys Gly Ile Thr Asp Asp Gln Leu Leu Ala Leu Leu Pro
385   390   395   400

Ser Leu Ser His Cys Ser Gln Leu Thr Thr Leu Ser Phe Tyr Gly Asn
            405   410   415

Ser Ile Ser Ile Ser Ala Leu Gln Ser Leu Leu Gln His Leu Ile Gly
            420   425   430

Leu Ser Asn Leu Thr His Val Leu Tyr Pro Val Pro Leu Glu Ser Tyr
            435   440   445

Glu Asp Ile His Gly Thr Leu His Leu Glu Arg Leu Ala Tyr Leu His
    450   455   460

Ala Arg Leu Arg Glu Leu Leu Cys Glu Leu Gly Arg Pro Ser Met Val
465   470   475   480

Trp Leu Ser Ala Asn Pro Cys Pro His Cys Gly Asp Arg Thr Phe Tyr
                485   490   495

154

Asp Pro Glu Pro Ile Leu Cys Pro Cys Phe Met Pro Asn
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<212> DNA
<213> Homo sapiens

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<210> 112
<211> 814
<212> PRT
<213> Homo sapiens

<400> 112
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Met Arg Leu Ala Leu Leu Trp Ala Leu Gly Leu Leu Gly Ala Gly Ser
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Pro Leu Pro Ser Trp Pro Leu Pro Asn Ile Gly Gly Thr Glu Glu Gln
             20                  25                  30

Gln Ala Glu Ser Glu Lys Ala Pro Arg Glu Pro Leu Glu Pro Gln Val
         35                  40                  45

Leu Gln Asp Asp Leu Pro Ile Ser Leu Lys Lys Val Leu Gln Thr Ser
     50                  55                  60

Leu Pro Glu Pro Leu Arg Ile Lys Leu Glu Leu Asp Gly Asp Ser His
 65                  70                  75                  80

Ile Leu Glu Leu Leu Gln Asn Arg Glu Leu Val Pro Gly Arg Pro Thr
                 85                  90                  95

Leu Val Trp Tyr Gln Pro Asp Gly Thr Arg Val Val Ser Glu Gly His
             100                 105                 110

Thr Leu Glu Asn Cys Cys Tyr Gln Gly Arg Val Arg Gly Tyr Ala Gly
         115                 120                 125

Ser Trp Val Ser Ile Cys Thr Cys Ser Gly Leu Arg Gly Leu Val Val
     130                 135                 140

Leu Thr Pro Glu Arg Ser Tyr Thr Leu Glu Gln Gly Pro Gly Asp Leu
145                 150                 155                 160

Gln Gly Pro Pro Ile Ile Ser Arg Ile Gln Asp Leu His Leu Pro Gly
                 165                 170                 175

His Thr Cys Ala Leu Ser Trp Arg Glu Ser Val His Thr Gln Thr Pro
         180                 185                 190

Pro Glu His Pro Leu Gly Gln Arg His Ile Arg Arg Arg Arg Asp Val
         195                 200                 205

Val Thr Glu Thr Lys Thr Val Glu Leu Val Ile Val Ala Asp His Ser
     210                 215                 220

Glu Ala Gln Lys Tyr Arg Asp Phe Gln His Leu Leu Asn Arg Thr Leu
225                 230                 235                 240

Glu Val Ala Leu Leu Leu Asp Thr Phe Phe Arg Pro Leu Asn Val Arg
                 245                 250                 255

Val Ala Leu Val Gly Leu Glu Ala Trp Thr Gln Arg Asp Leu Val Glu
             260                 265                 270

Ile Ser Pro Asn Pro Ala Val Thr Leu Glu Asn Phe Leu His Trp Arg
             275                 280                 285
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Arg Ala His Leu Leu Pro Arg Leu Pro His Asp Ser Ala Gln Leu Val
    290             295         300

Thr Gly Thr Ser Phe Ser Gly Pro Thr Val Gly Met Ala Ile Gln Asn
305             310             315                 320

Ser Ile Cys Ser Pro Asp Phe Ser Gly Gly Val Asn Met Asp His Ser
            325             330                 335

Thr Ser Ile Leu Gly Val Ala Ser Ser Ile Ala His Glu Leu Gly His
            340             345             350

Ser Leu Gly Leu Asp His Asp Leu Pro Gly Asn Ser Cys Pro Cys Pro
        355             360             365

Gly Pro Ala Pro Ala Lys Thr Cys Ile Met Glu Ala Ser Thr Asp Phe
    370             375             380

Leu Pro Gly Leu Asn Phe Ser Asn Cys Ser Arg Arg Ala Leu Glu Lys
385             390             395                 400

Ala Leu Leu Asp Gly Met Gly Ser Cys Leu Phe Glu Arg Leu Pro Ser
            405             410             415

Leu Pro Pro Met Ala Ala Phe Cys Gly Asn Met Phe Val Glu Pro Gly
            420             425             430

Glu Gln Cys Asp Cys Gly Phe Leu Asp Asp Cys Val Asp Pro Cys Cys
        435             440             445

Asp Ser Leu Thr Cys Gln Leu Arg Pro Gly Ala Gln Cys Ala Ser Asp
    450             455             460

Gly Pro Cys Cys Gln Asn Cys Gln Leu Arg Pro Ser Gly Trp Gln Cys
465             470             475                 480

Arg Pro Thr Arg Gly Asp Cys Asp Leu Pro Glu Phe Cys Pro Gly Asp
            485             490             495

Ser Ser Gln Cys Pro Pro Asp Val Ser Leu Gly Asp Gly Glu Pro Cys
        500             505             510

Ala Gly Gly Gln Ala Val Cys Met His Gly Arg Cys Ala Ser Tyr Ala
    515             520             525

Gln Gln Cys Gln Ser Leu Trp Gly Pro Gly Ala Gln Pro Ala Ala Pro
    530             535             540

Leu Cys Leu Gln Thr Ala Asn Thr Arg Gly Asn Ala Phe Gly Ser Cys
545             550             555                 560

Gly Arg Asn Pro Ser Gly Ser Tyr Val Ser Cys Thr Pro Arg Asp Ala
            565             570             575

Ile Cys Gly Gln Leu Gln Cys Gln Thr Gly Arg Thr Gln Pro Leu Leu
        580             585             590

Gly Ser Ile Arg Asp Leu Leu Trp Glu Thr Ile Asp Val Asn Gly Thr
        595             600             605
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157

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Glu Leu Asn Cys Ser Trp Val His Leu Asp Leu Gly Ser Asp Val Ala
    610                 615             620

Gln Pro Leu Leu Thr Leu Pro Gly Thr Ala Cys Gly Pro Gly Leu Val
625                 630             635                 640

Cys Ile Asp His Arg Cys Gln Arg Val Asp Leu Leu Gly Ala Gln Glu
                645             650                 655

Cys Arg Ser Lys Cys His Gly His Gly Val Cys Asp Ser Asn Arg His
            660             665             670

Cys Tyr Cys Glu Glu Gly Trp Ala Pro Pro Asp Cys Thr Thr Gln Leu
        675             680             685

Lys Ala Thr Ser Ser Leu Thr Thr Gly Leu Leu Leu Ser Leu Leu Val
    690             695             700

Leu Leu Val Leu Val Met Leu Gly Ala Gly Tyr Trp Tyr Arg Ala Arg
705                 710             715                 720

Leu His Gln Arg Leu Cys Gln Leu Lys Gly Pro Thr Cys Gln Tyr Arg
            725             730             735

Ala Ala Gln Ser Gly Pro Ser Glu Arg Pro Gly Pro Pro Gln Arg Ala
            740             745             750

Leu Leu Ala Arg Gly Thr Lys Ser Gln Gly Pro Ala Lys Pro Pro Pro
        755             760             765

Pro Arg Lys Pro Leu Pro Ala Asp Pro Gln Gly Arg Cys Pro Ser Gly
    770             775             780

Asp Leu Pro Gly Pro Gly Ala Gly Ile Pro Pro Leu Val Val Pro Ser
785             790             795                 800

Arg Pro Ala Pro Pro Pro Pro Thr Val Ser Ser Leu Tyr Leu
            805             810


<210> 113
<211> 2545
<212> DNA
<213> Homo sapiens

<400> 113
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158

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<210> 114
<211> 125
<212> PRT
<213> Homo sapiens

<400> 114

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             20                  25                  30

Cys Ile Ser Thr Asn Gln Gly Thr Ile His Leu Gln Ser Leu Lys Asp
             35                  40                  45

Leu Lys Gln Phe Ala Pro Ser Pro Ser Cys Glu Lys Ile Glu Ile Ile
     50                  55                  60

Ala Thr Leu Lys Asn Gly Val Gln Thr Cys Leu Asn Pro Asp Ser Ala
 65                  70                  75                  80

Asp Val Lys Glu Leu Ile Lys Lys Trp Glu Lys Gln Val Ser Gln Lys
                 85                  90                  95

Lys Lys Gln Lys Asn Gly Lys Lys His Gln Lys Lys Lys Val Leu Lys
                100                 105                 110

Val Arg Lys Ser Gln Arg Ser Arg Gln Lys Lys Thr Thr
         115                 120                 125
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159

<210> 115
<211> 1695
<212> DNA
<213> Homo sapiens

<400> 115
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cctgtctacc tgcagcacac tcgatatgga ccagttcatg cgcaagagga tcgaggcgat 300
ccgcgggcag atcctgagca agctgaagct caccagtccc ccagaagact atcctgagcc 360
cgaggaagtc ccccggagg tgatttccat ctacaacagc accagggact tgctccagga 420
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caaggaggtt tacaaaatag acatgccgcc cttcttcccc tccgaaaatg ccatcccgcc 540
cactttctac agaccctact tcagaattgt tcgatttgac gtctcagcaa tggagaagaa 600
tgcttccaat ttggtgaaag cagagttcag agtctttcgt ttgcagaacc caaaagccag 660
agtgcctgaa caacggattg agctatatca gattctcaag tccaaagatt taacatctcc 720
aacccagcgc tacatcgaca gcaaagttgt gaaaacaaga gcagaaggcg aatggctctc 780
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tgtaacaaga aaacataaga gagccttggt tcatcagtgt taaaaaattt ttgaaaaggc 1560
ggtactagtt cagacacttt ggaagtttgt gttctgtttg ttaaaactgg catctgacac 1620
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gcaaattttt ttaaa                                                  1695
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<210> 116
<211> 414
<212> PRT
<213> Homo sapiens

<400> 116
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Met His Tyr Cys Val Leu Ser Ala Phe Leu Ile Leu His Leu Val Thr
 1               5                  10                  15

Val Ala Leu Ser Leu Ser Thr Cys Ser Thr Leu Asp Met Asp Gln Phe
            20                  25                  30

Met Arg Lys Arg Ile Glu Ala Ile Arg Gly Gln Ile Leu Ser Lys Leu
        35                  40                  45

Lys Leu Thr Ser Pro Pro Glu Asp Tyr Pro Glu Pro Glu Glu Val Pro
    50                  55                  60

Pro Glu Val Ile Ser Ile Tyr Asn Ser Thr Arg Asp Leu Leu Gln Glu
65                  70                  75                  80

Lys Ala Ser Arg Arg Ala Ala Ala Cys Glu Arg Glu Arg Ser Asp Glu
                85                  90                  95
```

160

```
Glu Tyr Tyr Ala Lys Glu Val Tyr Lys Ile Asp Met Pro Pro Phe Phe
            100             105             110

Pro Ser Glu Asn Ala Ile Pro Pro Thr Phe Tyr Arg Pro Tyr Phe Arg
            115             120             125

Ile Val Arg Phe Asp Val Ser Ala Met Glu Lys Asn Ala Ser Asn Leu
    130             135             140

Val Lys Ala Glu Phe Arg Val Phe Arg Leu Gln Asn Pro Lys Ala Arg
145             150             155             160

Val Pro Glu Gln Arg Ile Glu Leu Tyr Gln Ile Leu Lys Ser Lys Asp
            165             170             175

Leu Thr Ser Pro Thr Gln Arg Tyr Ile Asp Ser Lys Val Val Lys Thr
            180             185             190

Arg Ala Glu Gly Glu Trp Leu Ser Phe Asp Val Thr Asp Ala Val His
            195             200             205

Glu Trp Leu His His Lys Asp Arg Asn Leu Gly Phe Lys Ile Ser Leu
    210             215             220

His Cys Pro Cys Cys Thr Phe Val Pro Ser Asn Asn Tyr Ile Ile Pro
225             230             235             240

Asn Lys Ser Glu Glu Leu Glu Ala Arg Phe Ala Gly Ile Asp Gly Thr
            245             250             255

Ser Thr Tyr Thr Ser Gly Asp Gln Lys Thr Ile Lys Ser Thr Arg Lys
            260             265             270

Lys Asn Ser Gly Lys Thr Pro His Leu Leu Leu Met Leu Leu Pro Ser
            275             280             285

Tyr Arg Leu Glu Ser Gln Gln Thr Asn Arg Arg Lys Lys Arg Ala Leu
    290             295             300

Asp Ala Ala Tyr Cys Phe Arg Asn Val Gln Asp Asn Cys Cys Leu Arg
305             310             315             320

Pro Leu Tyr Ile Asp Phe Lys Arg Asp Leu Gly Trp Lys Trp Ile His
            325             330             335

Glu Pro Lys Gly Tyr Asn Ala Asn Phe Cys Ala Gly Ala Cys Pro Tyr
            340             345             350

Leu Trp Ser Ser Asp Thr Gln His Ser Arg Val Leu Ser Leu Tyr Asn
            355             360             365

Thr Ile Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val Ser Gln Asp
    370             375             380

Leu Glu Pro Leu Thr Ile Leu Tyr Tyr Ile Gly Lys Thr Pro Lys Ile
385             390             395             400

Glu Gln Leu Ser Asn Met Ile Val Lys Ser Cys Lys Cys Ser
            405             410
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161

<210> 117
<211> 2439
<212> DNA
<213> Homo sapiens

<400> 117
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gcggcagcag gtcagggaga tcacgttcct gaaaaacacg gtgatggagt gtgacgcgtg 240
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cgcccacccc tgcttccccc gagtccgctg tatcaacacc agcccggggt tccgctgcga 480
ggcttgcccg ccggggtaca gcggccccac ccaccagggc gtggggctgg ctttcgccaa 540
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ccccaactcc gtgtgcatca cacccggggg ctccttccag tgcggcccgt gccagcccgg 660
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cgtgactgtg cccaactcag ggcaggagga tgtggaccgc gatggcatcg agacgcctg 960
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tcagctgcgg caagcctagg gaccagggtg aggacccgcc ggatgacagc caccctcacc 2340
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<210> 118
<211> 757
<212> PRT
<213> Homo sapiens

<400> 118
Met Val Pro Asp Thr Ala Cys Val Leu Leu Leu Thr Leu Ala Ala Leu
1   5   10   15

Gly Ala Ser Gly Gln Gly Gln Ser Pro Leu Gly Ser Asp Leu Gly Pro
                20   25   30

162

```
Gln Met Leu Arg Glu Leu Gln Glu Thr Asn Ala Ala Leu Gln Asp Val
        35                40                45

Arg Asp Trp Leu Arg Gln Gln Val Arg Glu Ile Thr Phe Leu Lys Asn
        50                55                60

Thr Val Met Glu Cys Asp Ala Cys Gly Met Gln Gln Ser Val Arg Thr
65                70                75                80

Gly Leu Pro Ser Val Arg Pro Leu Leu His Cys Ala Pro Gly Phe Cys
                85                90                95

Phe Pro Gly Val Ala Cys Ile Gln Thr Glu Ser Gly Gly Arg Cys Gly
            100                105                110

Pro Cys Pro Ala Gly Phe Thr Gly Asn Gly Ser His Cys Thr Asp Val
        115                120                125

Asn Glu Cys Asn Ala His Pro Cys Phe Pro Arg Val Arg Cys Ile Asn
    130                135                140

Thr Ser Pro Gly Phe Arg Cys Glu Ala Cys Pro Pro Gly Tyr Ser Gly
145                150                155                160

Pro Thr His Gln Gly Val Gly Leu Ala Phe Ala Lys Ala Asn Lys Gln
            165                170                175

Val Cys Thr Asp Ile Asn Glu Cys Glu Thr Gly Gln His Asn Cys Val
        180                185                190

Pro Asn Ser Val Cys Ile Asn Thr Arg Gly Ser Phe Gln Cys Gly Pro
        195                200                205

Cys Gln Pro Gly Phe Val Gly Asp Gln Ala Ser Gly Cys Gln Arg Gly
    210                215                220

Ala Gln Arg Phe Cys Pro Asp Gly Ser Pro Ser Glu Cys His Glu His
225                230                235                240

Ala Asp Cys Val Leu Glu Arg Asp Gly Ser Arg Ser Cys Val Cys Arg
            245                250                255

Val Gly Trp Ala Gly Asn Gly Ile Leu Cys Gly Arg Asp Thr Asp Leu
            260                265                270

Asp Gly Phe Pro Asp Glu Lys Leu Arg Cys Pro Glu Pro Gln Cys Arg
        275                280                285

Lys Asp Asn Cys Val Thr Val Pro Asn Ser Gly Gln Glu Asp Val Asp
    290                295                300

Arg Asp Gly Ile Gly Asp Ala Cys Asp Pro Asp Ala Asp Gly Asp Gly
305                310                315                320

Val Pro Asn Glu Lys Asp Asn Cys Pro Leu Val Arg Asn Pro Asp Gln
            325                330                335

Arg Asn Thr Asp Glu Asp Lys Trp Gly Asp Ala Cys Asp Asn Cys Arg
        340                345                350
```

163

```
Ser Gln Lys Asn Asp Asp Gln Lys Asp Thr Asp Gln Asp Gly Arg Gly
    355             360             365

Asp Ala Cys Asp Asp Asp Ile Asp Gly Asp Arg Ile Arg Asn Gln Ala
    370             375             380

Asp Asn Cys Pro Arg Val Pro Asn Ser Asp Gln Lys Asp Ser Asp Gly
385             390             395             400

Asp Gly Ile Gly Asp Ala Cys Asp Asn Cys Pro Gln Lys Ser Asn Pro
            405             410             415

Asp Gln Ala Asp Val Asp His Asp Phe Val Gly Asp Ala Cys Asp Ser
        420             425             430

Asp Gln Asp Gln Asp Gly Asp Gly His Gln Asp Ser Arg Asp Asn Cys
        435             440             445

Pro Thr Val Pro Asn Ser Ala Gln Glu Asp Ser Asp His Asp Gly Gln
    450             455             460

Gly Asp Ala Cys Asp Asp Asp Asp Asn Asp Gly Val Pro Asp Ser
465             470             475             480

Arg Asp Asn Cys Arg Leu Val Pro Asn Pro Gly Gln Glu Asp Ala Asp
            485             490             495

Arg Asp Gly Val Gly Asp Val Cys Gln Asp Asp Phe Asp Ala Asp Lys
        500             505             510

Val Val Asp Lys Ile Asp Val Cys Pro Glu Asn Ala Glu Val Thr Leu
        515             520             525

Thr Asp Phe Arg Ala Phe Gln Thr Val Val Leu Asp Pro Glu Gly Asp
    530             535             540

Ala Gln Ile Asp Pro Asn Trp Val Val Leu Asn Gln Gly Arg Glu Ile
545             550             555             560

Val Gln Thr Met Asn Ser Asp Pro Gly Leu Ala Val Gly Tyr Thr Ala
            565             570             575

Phe Asn Gly Val Asp Phe Glu Gly Thr Phe His Val Asn Thr Val Thr
            580             585             590

Asp Asp Asp Tyr Ala Gly Phe Ile Phe Gly Tyr Gln Asp Ser Ser Ser
        595             600             605

Phe Tyr Val Val Met Trp Lys Gln Met Glu Gln Thr Tyr Trp Gln Ala
    610             615             620

Asn Pro Phe Arg Ala Val Ala Glu Pro Gly Ile Gln Leu Lys Ala Val
625             630             635             640

Lys Ser Ser Thr Gly Pro Gly Glu Gln Leu Arg Asn Ala Leu Trp His
            645             650             655

Thr Gly Asp Thr Glu Ser Gln Val Arg Leu Leu Trp Lys Asp Pro Arg
            660             665             670
```

Asn Val Gly Trp Lys Asp Lys Lys Ser Tyr Arg Trp Phe Leu Gln His
        675   680   685

Arg Pro Gln Val Gly Tyr Ile Arg Val Arg Phe Tyr Glu Gly Pro Glu
        690   695   700

Leu Val Ala Asp Ser Asn Val Val Leu Asp Thr Thr Met Arg Gly Gly
705   710   715   720

Arg Leu Gly Val Phe Cys Phe Ser Gln Glu Asn Ile Ile Trp Ala Asn
                725   730   735

Leu Arg Tyr Arg Cys Asn Asp Thr Ile Pro Glu Asp Tyr Glu Thr His
                740   745   750

Gln Leu Arg Gln Ala
        755

<210> 119
<211> 3264
<212> DNA
<213> Homo sapiens

<400> 119
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cctacttcag ccccttggtg tgagcagctt ctcaacatga actacagcct ccacttggcc 180
ttcgtgtgtc tgagtctctt cactgagagg atgtgcatcc aggggagtca gttcaacgtc 240
gaggtcggca gaagtgacaa gctttccctg cctggctttg agaacctcac agcaggatat 300
aacaaatttc tcaggcccaa ttttggtgga gaacccgtac agatagcgct gactctggac 360
attgcaagta tctctagcat ttcagagagt aacatggact acacagccac catataccto 420
cgacagcgct ggatggacca gcggctggtg tttgaaggca caagagctt cactctggat 480
gcccgcctcg tggagttcct ctgggtgcca gatacttaca ttgtggagtc caagaagtcc 540
ttcctccatg aagtcactgt gggaaacagg ctcatccgcc tcttctccaa tggcacggtc 600
ctgtatgccc tcagaatcac gacaactgtt gcatgtaaca tggatctgtc taaataccc 660
atggacacac agacatgcaa gttgcagctg gaaagctggg gctatgatgg aaatgatgtg 720
gagttcacct ggctgagagg gaacgactct gtgcgtggac tggaacacct gcggcttgct 780
cagtacacca tagagcggta tttcacctta gtcaccagat cgcagcagga gacaggaaat 840
tacactagat tggtcttaca gtttgagctt cggaggaatg ttctgtattt cattttggaa 900
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ttggaagtca atgcactaac tcaataccaa gatgagtttt aaataatga atattattta 2040
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agtgaagaaa aaattagtag atcaacaatc taaacaaatc cctcggttct aagatacaat 2160

165

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<210> 120
<211> 440
<212> PRT
<213> Homo sapiens

<400> 120

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            20                  25                  30

Ser Asp Lys Leu Ser Leu Pro Gly Phe Glu Asn Leu Thr Ala Gly Tyr
        35                  40                  45

Asn Lys Phe Leu Arg Pro Asn Phe Gly Gly Glu Pro Val Gln Ile Ala
    50                  55                  60

Leu Thr Leu Asp Ile Ala Ser Ile Ser Ser Ile Ser Glu Ser Asn Met
65                  70                  75                  80

Asp Tyr Thr Ala Thr Ile Tyr Leu Arg Gln Arg Trp Met Asp Gln Arg
                85                  90                  95

Leu Val Phe Glu Gly Asn Lys Ser Phe Thr Leu Asp Ala Arg Leu Val
            100                 105                 110

Glu Phe Leu Trp Val Pro Asp Thr Tyr Ile Val Glu Ser Lys Lys Ser
            115                 120                 125

Phe Leu His Glu Val Thr Val Gly Asn Arg Leu Ile Arg Leu Phe Ser
    130                 135                 140

Asn Gly Thr Val Leu Tyr Ala Leu Arg Ile Thr Thr Thr Val Ala Cys
145                 150                 155                 160

Asn Met Asp Leu Ser Lys Tyr Pro Met Asp Thr Gln Thr Cys Lys Leu
                165                 170                 175
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Gln Leu Glu Ser Trp Gly Tyr Asp Gly Asn Asp Val Glu Phe Thr Trp
            180             185             190

Leu Arg Gly Asn Asp Ser Val Arg Gly Leu Glu His Leu Arg Leu Ala
            195             200             205

Gln Tyr Thr Ile Glu Arg Tyr Phe Thr Leu Val Thr Arg Ser Gln Gln
    210             215             220

Glu Thr Gly Asn Tyr Thr Arg Leu Val Leu Gln Phe Glu Leu Arg Arg
225             230             235             240

Asn Val Leu Tyr Phe Ile Leu Glu Thr Tyr Val Pro Ser Thr Phe Leu
            245             250             255

Val Val Leu Ser Trp Val Ser Phe Trp Ile Ser Leu Asp Ser Val Pro
            260             265             270

Ala Arg Thr Cys Ile Gly Val Thr Thr Val Leu Ser Met Thr Thr Leu
            275             280             285

Met Ile Gly Ser Arg Thr Ser Leu Pro Asn Thr Asn Cys Phe Ile Lys
    290             295             300

Ala Ile Asp Val Tyr Leu Gly Ile Cys Phe Ser Phe Val Phe Gly Ala
305             310             315             320

Leu Leu Glu Tyr Ala Val Ala His Tyr Ser Ser Leu Gln Gln Met Ala
            325             330             335

Ala Lys Asp Arg Gly Thr Thr Lys Glu Val Glu Glu Val Ser Ile Thr
            340             345             350

Asn Ile Ile Asn Ser Ser Ile Ser Ser Phe Lys Arg Lys Ile Ser Phe
            355             360             365

Ala Ser Ile Glu Ile Ser Ser Asp Asn Val Asp Tyr Ser Asp Leu Thr
    370             375             380

Met Lys Thr Ser Asp Lys Phe Lys Phe Val Phe Arg Glu Lys Met Gly
385             390             395             400

Arg Ile Val Asp Tyr Phe Thr Ile Gln Asn Pro Ser Asn Val Asp His
            405             410             415

Tyr Ser Lys Leu Leu Phe Pro Leu Ile Phe Met Leu Ala Asn Val Phe
            420             425             430

Tyr Trp Ala Tyr Tyr Met Tyr Phe
            435             440


<210> 121
<211> 6158
<212> DNA
<213> Homo sapiens

<220>
<221> modified_base
<222> (1)..(6158)
<223> n = g, a, c or t
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167

<400> 121
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168

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Phe Thr Val Thr Thr Leu Ala Leu Thr Phe Leu Phe Gln Ala Arg Glu
                20   25   30

169

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Val Arg Gly Ala Ala Pro Val Asp Val Leu Lys Ala Leu Asp Phe His
        35              40              45

Asn Ser Pro Glu Gly Ile Ser Lys Thr Thr Gly Phe Cys Thr Asn Arg
    50              55              60

Lys Asn Ser Lys Gly Ser Asp Thr Ala Tyr Arg Val Ser Lys Gln Ala
65              70              75              80

Gln Leu Ser Ala Pro Thr Lys Gln Leu Phe Pro Gly Gly Thr Phe Pro
            85              90              95

Glu Asp Phe Ser Ile Leu Phe Thr Val Lys Pro Lys Lys Gly Ile Gln
            100             105             110

Ser Phe Leu Leu Ser Ile Tyr Asn Glu His Gly Ile Gln Gln Ile Gly
        115             120             125

Val Glu Val Gly Arg Ser Pro Val Phe Leu Phe Glu Asp His Thr Gly
    130             135             140

Lys Pro Ala Pro Glu Asp Tyr Pro Leu Phe Arg Thr Val Asn Ile Ala
145             150             155             160

Asp Gly Lys Trp His Arg Val Ala Ile Ser Val Glu Lys Lys Thr Val
            165             170             175

Thr Met Ile Val Asp Cys Lys Lys Lys Thr Thr Lys Pro Leu Asp Arg
        180             185             190

Ser Glu Arg Ala Ile Val Asp Thr Asn Gly Ile Thr Val Phe Gly Thr
    195             200             205

Arg Ile Leu Asp Glu Glu Val Phe Glu Gly Asp Ile Gln Gln Phe Leu
    210             215             220

Ile Thr Gly Asp Pro Lys Ala Ala Tyr Asp Tyr Cys Glu His Tyr Ser
225             230             235             240

Pro Asp Cys Asp Ser Ser Ala Pro Lys Ala Ala Gln Ala Gln Glu Pro
            245             250             255

Gln Ile Asp Glu Tyr Ala Pro Glu Asp Ile Ile Glu Tyr Asp Tyr Glu
        260             265             270

Tyr Gly Glu Ala Glu Tyr Lys Glu Ala Glu Ser Val Thr Glu Gly Pro
    275             280             285

Thr Val Thr Glu Glu Thr Ile Ala Gln Thr Glu Ala Asn Ile Val Asp
    290             295             300

Asp Phe Gln Glu Tyr Asn Tyr Gly Thr Met Glu Ser Tyr Gln Thr Glu
305             310             315             320

Ala Pro Arg His Val Ser Gly Thr Asn Glu Pro Asn Pro Val Glu Glu
            325             330             335

Ile Phe Thr Glu Glu Tyr Leu Thr Gly Glu Asp Tyr Asp Ser Gln Arg
        340             345             350
```

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Lys Asn Ser Glu Asp Thr Leu Tyr Glu Asn Lys Glu Ile Asp Gly Arg
        355                 360                 365

Asp Ser Asp Leu Leu Val Asp Gly Asp Leu Gly Glu Tyr Asp Phe Tyr
        370                 375                 380

Glu Tyr Lys Glu Tyr Glu Asp Lys Pro Thr Ser Pro Pro Asn Glu Glu
385                 390                 395                 400

Phe Gly Pro Gly Val Pro Ala Glu Thr Asp Ile Thr Glu Thr Ser Ile
                405                 410                 415

Asn Gly His Gly Ala Tyr Gly Glu Lys Gly Gln Lys Gly Glu Pro Ala
            420                 425                 430

Val Val Glu Pro Gly Met Leu Val Glu Gly Pro Pro Gly Pro Ala Gly
        435                 440                 445

Pro Ala Gly Ile Met Gly Pro Pro Gly Leu Gln Gly Pro Thr Gly Pro
    450                 455                 460

Pro Gly Asp Pro Gly Asp Arg Gly Pro Pro Gly Arg Pro Gly Leu Pro
465                 470                 475                 480

Gly Ala Asp Gly Leu Pro Gly Pro Pro Gly Thr Met Leu Met Leu Pro
            485                 490                 495

Phe Arg Tyr Gly Gly Asp Gly Ser Lys Gly Pro Thr Ile Ser Ala Gln
        500                 505                 510

Glu Ala Gln Ala Gln Ala Ile Leu Gln Gln Ala Arg Ile Ala Leu Arg
        515                 520                 525

Gly Pro Pro Gly Pro Met Gly Leu Thr Gly Arg Pro Gly Pro Val Gly
    530                 535                 540

Gly Pro Gly Ser Ser Gly Ala Lys Gly Glu Ser Gly Asp Pro Gly Pro
545                 550                 555                 560

Gln Gly Pro Arg Gly Val Gln Gly Pro Pro Gly Pro Thr Gly Lys Pro
            565                 570                 575

Gly Lys Arg Gly Arg Pro Gly Ala Asp Gly Gly Arg Gly Met Pro Gly
            580                 585                 590

Glu Pro Gly Ala Lys Gly Asp Arg Gly Phe Asp Gly Leu Pro Gly Leu
        595                 600                 605

Pro Gly Asp Lys Gly His Arg Gly Glu Arg Gly Pro Gln Gly Pro Pro
    610                 615                 620

Gly Pro Pro Gly Asp Asp Gly Met Arg Gly Glu Asp Gly Glu Ile Gly
625                 630                 635                 640

Pro Arg Gly Leu Pro Gly Glu Ala Gly Pro Arg Gly Leu Leu Gly Pro
            645                 650                 655

Arg Gly Thr Pro Gly Ala Pro Gly Gln Pro Gly Met Ala Gly Val Asp
            660                 665                 670
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171

Gly Pro Pro Gly Pro Lys Gly Asn Met Gly Pro Gln Gly Glu Pro Gly
        675   680   685

Pro Pro Gly Gln Gln Gly Asn Pro Gly Pro Gln Gly Leu Pro Gly Pro
        690   695   700

Gln Gly Pro Ile Gly Pro Pro Gly Glu Lys Gly Pro Gln Gly Lys Pro
705   710   715   720

Gly Leu Ala Gly Leu Pro Gly Ala Asp Gly Pro Pro Gly His Pro Gly
                725   730   735

Lys Glu Gly Gln Ser Gly Glu Lys Gly Ala Leu Gly Pro Pro Gly Pro
                740   745   750

Gln Gly Pro Ile Gly Xaa Pro Gly Pro Arg Gly Val Lys Gly Ala Asp
                755   760   765

Gly Val Arg Gly Leu Lys Gly Ser Lys Gly Glu Lys Gly Glu Asp Gly
        770   775   780

Phe Pro Gly Phe Lys Gly Asp Met Gly Leu Lys Gly Asp Arg Gly Glu
785   790   795   800

Val Gly Gln Ile Gly Pro Arg Gly Xaa Asp Gly Pro Glu Gly Pro Lys
                805   810   815

Gly Arg Ala Gly Pro Thr Gly Asp Pro Gly Pro Ser Gly Gln Ala Gly
        820   825   830

Glu Lys Gly Lys Leu Gly Val Pro Gly Leu Pro Gly Tyr Pro Gly Arg
        835   840   845

Gln Gly Pro Lys Gly Ser Thr Gly Phe Pro Gly Phe Pro Gly Ala Asn
        850   855   860

Gly Glu Lys Gly Ala Arg Gly Val Ala Gly Lys Pro Gly Pro Arg Gly
865   870   875   880

Gln Arg Gly Pro Thr Gly Pro Arg Gly Ser Arg Gly Ala Arg Gly Pro
                885   890   895

Thr Gly Lys Pro Gly Pro Lys Gly Thr Ser Gly Gly Asp Gly Pro Pro
                900   905   910

Gly Pro Pro Gly Glu Arg Gly Pro Gln Gly Pro Gln Gly Pro Val Gly
        915   920   925

Phe Pro Gly Pro Lys Gly Pro Pro Gly Pro Pro Gly Arg Met Gly Cys
        930   935   940

Pro Gly His Pro Gly Gln Arg Gly Glu Thr Gly Phe Gln Gly Lys Thr
945   950   955   960

Gly Pro Pro Gly Pro Gly Gly Val Val Gly Pro Gln Gly Pro Thr Gly
                965   970   975

Glu Thr Gly Pro Ile Gly Glu Arg Gly Tyr Pro Gly Pro Pro Gly Pro
        980   985   990

172

Pro Gly Glu Gln Gly Leu Pro Gly Ala Ala Gly Lys Glu Gly Ala Lys
    995   1000   1005

Gly Asp Pro Gly Pro Gln Gly Ile Ser Gly Lys Asp Gly Pro Ala Gly
   1010   1015   1020

Leu Arg Gly Phe Pro Gly Glu Arg Gly Leu Pro Gly Ala Gln Gly Ala
1025   1030   1035   1040

Pro Gly Leu Lys Gly Gly Glu Gly Pro Gln Gly Pro Pro Gly Pro Val
                1045   1050   1055

Gly Ser Pro Gly Glu Arg Gly Ser Ala Gly Thr Ala Gly Pro Ile Gly
            1060   1065   1070

Leu Arg Gly Arg Pro Gly Pro Gln Gly Pro Pro Gly Pro Ala Gly Glu
            1075   1080   1085

Lys Gly Ala Pro Gly Glu Lys Gly Pro Gln Gly Pro Ala Gly Arg Asp
    1090   1095   1100

Gly Val Gln Gly Pro Val Gly Leu Pro Gly Pro Ala Gly Pro Ala Gly
1105   1110   1115   1120

Ser Pro Gly Glu Asp Gly Asp Lys Gly Glu Ile Gly Glu Pro Gly Gln
                1125   1130   1135

Lys Gly Ser Lys Gly Gly Lys Gly Glu Asn Gly Pro Pro Gly Pro Pro
            1140   1145   1150

Gly Leu Gln Gly Pro Val Gly Ala Pro Gly Ile Ala Gly Gly Asp Gly
            1155   1160   1165

Glu Pro Gly Pro Arg Gly Gln Gln Gly Met Phe Gly Gln Lys Gly Asp
    1170   1175   1180

Glu Gly Ala Arg Gly Phe Pro Gly Pro Pro Gly Pro Ile Gly Leu Gln
1185   1190   1195   1200

Gly Leu Pro Gly Pro Pro Gly Glu Lys Gly Glu Asn Gly Asp Val Gly
            1205   1210   1215

Pro Trp Gly Pro Pro Gly Pro Pro Gly Pro Arg Gly Pro Gln Gly Pro
            1220   1225   1230

Asn Gly Ala Asp Gly Pro Gln Gly Pro Pro Gly Ser Val Gly Ser Val
            1235   1240   1245

Gly Gly Val Gly Glu Lys Gly Glu Pro Gly Glu Ala Gly Asn Pro Gly
    1250   1255   1260

Pro Pro Gly Glu Ala Gly Val Gly Gly Pro Lys Gly Glu Arg Gly Glu
1265   1270   1275   1280

Lys Gly Glu Ala Gly Pro Pro Gly Ala Ala Gly Pro Pro Gly Ala Lys
            1285   1290   1295

Gly Pro Pro Gly Asp Asp Gly Pro Lys Gly Asn Pro Gly Pro Val Gly
            1300   1305   1310

173

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Phe Pro Gly Asp Pro Gly Pro Pro Gly Glu Leu Gly Pro Ala Gly Gln
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Asp Gly Val Gly Gly Asp Lys Gly Glu Asp Gly Asp Pro Gly Gln Pro
    1330              1335              1340

Gly Pro Pro Gly Pro Ser Gly Glu Ala Gly Pro Pro Gly Pro Pro Gly
1345              1350              1355              1360

Lys Arg Gly Pro Pro Gly Ala Ala Gly Ala Glu Gly Arg Gln Gly Glu
              1365              1370              1375

Lys Gly Ala Lys Gly Glu Ala Gly Ala Glu Gly Pro Pro Gly Lys Thr
              1380              1385              1390

Gly Pro Val Gly Pro Gln Gly Pro Ala Gly Lys Pro Gly Pro Glu Gly
              1395              1400              1405

Leu Arg Gly Ile Pro Gly Pro Val Gly Glu Gln Gly Leu Pro Gly Ala
    1410              1415              1420

Ala Gly Gln Asp Gly Pro Pro Gly Pro Met Gly Pro Pro Gly Leu Pro
1425              1430              1435              1440

Gly Leu Lys Gly Asp Pro Gly Ser Lys Gly Glu Lys Gly His Pro Gly
              1445              1450              1455

Leu Ile Gly Leu Ile Gly Pro Pro Gly Glu Gln Gly Glu Lys Gly Asp
              1460              1465              1470

Arg Gly Leu Pro Gly Thr Gln Gly Ser Pro Gly Ala Lys Gly Asp Gly
    1475              1480              1485

Gly Ile Pro Gly Pro Ala Gly Pro Leu Gly Pro Pro Gly Pro Pro Gly
    1490              1495              1500

Leu Pro Gly Pro Gln Gly Pro Lys Gly Asn Lys Gly Ser Thr Gly Pro
1505              1510              1515              1520

Ala Gly Gln Lys Gly Asp Ser Gly Leu Pro Gly Pro Pro Gly Pro Pro
              1525              1530              1535

Gly Pro Pro Gly Glu Val Ile Gln Pro Leu Pro Ile Leu Ser Ser Lys
              1540              1545              1550

Lys Thr Arg Arg His Thr Glu Gly Met Gln Ala Asp Ala Asp Asp Asn
    1555              1560              1565

Ile Leu Asp Tyr Ser Asp Gly Met Glu Glu Ile Phe Gly Ser Leu Asn
    1570              1575              1580

Ser Leu Lys Gln Asp Ile Glu His Met Lys Phe Pro Met Gly Thr Gln
1585              1590              1595              1600

Thr Asn Pro Ala Arg Thr Cys Lys Asp Leu Gln Leu Ser His Pro Asp
              1605              1610              1615

Phe Pro Asp Gly Glu Tyr Trp Ile Asp Pro Asn Gln Gly Cys Ser Gly
    1620              1625              1630
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174

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Asp Ser Phe Lys Val Tyr Cys Asn Phe Thr Ser Gly Gly Glu Thr Cys
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Ile Tyr Pro Asp Lys Lys Ser Glu Gly Val Arg Ile Ser Ser Trp Pro
       1650                1655                1660

Lys Glu Lys Pro Gly Ser Trp Phe Ser Glu Phe Lys Arg Gly Lys Leu
1665                1670                1675                1680

Leu Ser Tyr Leu Asp Val Glu Gly Asn Ser Ile Asn Met Val Gln Met
                   1685                1690                1695

Thr Phe Leu Lys Leu Leu Thr Ala Ser Ala Arg Gln Asn Phe Thr Tyr
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His Cys His Gln Ser Ala Ala Trp Tyr Asp Val Ser Ser Gly Ser Tyr
              1715                1720                1725

Asp Lys Ala Leu Arg Phe Leu Gly Ser Asn Asp Glu Glu Met Ser Tyr
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Asp Asn Asn Pro Phe Ile Lys Thr Leu Tyr Asp Gly Cys Thr Ser Arg
1745                1750                1755                1760

Lys Gly Tyr Glu Lys Thr Val Ile Glu Ile Asn Thr Pro Lys Ile Asp
              1765                1770                1775

Gln Val Pro Ile Val Asp Val Met Ile Ser Asp Phe Gly Asp Gln Asn
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Gln Lys Phe Gly Phe Glu Val Gly Pro Val Cys Phe Leu Gly
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<210> 124
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<213> Homo sapiens

<400> 124

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Cys Glu Ala Ser Thr Val Val Leu Leu Asn Ser Thr Asp Ser Ser Pro
             20                  25                  30

Pro Thr Asn Asn Phe Thr Asp Ile Glu Ala Ala Leu Lys Ala Gln Leu
             35                  40                  45

Asp Ser Ala Asp Ile Pro Lys Ala Arg Arg Lys Arg Tyr Ile Ser Gln
        50                  55                  60

Asn Asp Met Ile Ala Ile Leu Asp Tyr His Asn Gln Val Arg Gly Lys
 65                  70                  75                  80

Val Phe Pro Pro Ala Ala Asn Met Glu Tyr Met Val Trp Asp Glu Asn
                 85                  90                  95

Leu Ala Lys Ser Ala Glu Ala Trp Ala Ala Thr Cys Ile Trp Asp His
            100                 105                 110

Gly Pro Ser Tyr Leu Leu Arg Phe Leu Gly Gln Asn Leu Ser Val Arg
            115                 120                 125

Thr Gly Arg Tyr Arg Ser Ile Leu Gln Leu Val Lys Pro Trp Tyr Asp
        130                 135                 140

Glu Val Lys Asp Tyr Ala Phe Pro Tyr Pro Gln Asp Cys Asn Pro Arg
145                 150                 155                 160

Cys Pro Met Arg Cys Phe Gly Pro Met Cys Thr His Tyr Thr Gln Met
                165                 170                 175

Val Trp Ala Thr Ser Asn Arg Ile Gly Cys Ala Ile His Ala Cys Gln
                180                 185                 190

Asn Met Asn Val Trp Gly Ser Val Trp Arg Arg Ala Val Tyr Leu Val
            195                 200                 205

Cys Asn Tyr Ala Pro Lys Gly Asn Trp Ile Gly Glu Ala Pro Tyr Lys
    210                 215                 220

Val Gly Val Pro Cys Ser Ser Cys Pro Pro Ser Tyr Gly Gly Ser Cys
225                 230                 235                 240

Thr Asp Asn Leu Cys Phe Pro Gly Val Thr Ser Asn Tyr Leu Tyr Trp
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Phe Lys
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176

<210> 125
<211> 3171
<212> DNA
<213> Homo sapiens

<400> 125
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cctccgagcc gtgccgggcg gtcttcaggg aggctgaagt gaccttggag gcgggaggcg 180
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aaagaaggtc actgaaggaa aggaatccat tgaagatctt cccatccaaa cgtatcttac 360
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ccttccccca gagactgaat cagctcaagt ctaataaaga tagagacacc aagattttct 480
acagcatcac ggggccgggg gcagacagcc ccctgaggg tgtcttcgct gtagagaagg 540
agacaggctg gttgttgttg aataagccac tggaccggga ggagattgcc aagtatgagc 600
tctttggcca cgctgtgtca gagaatggtg cctcagtgga ggaccccatg aacatctcca 660
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<210> 126
<211> 829
<212> PRT
<213> Homo sapiens

<400> 126
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Met Gly Leu Pro Arg Gly Pro Leu Ala Ser Leu Leu Leu Leu Gln Val
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Cys Trp Leu Gln Cys Ala Ala Ser Glu Pro Cys Arg Ala Val Phe Arg
            20                  25                  30

Glu Ala Glu Val Thr Leu Glu Ala Gly Gly Ala Glu Gln Glu Pro Gly
            35                  40                  45

Gln Ala Leu Gly Lys Val Phe Met Gly Cys Pro Gly Gln Glu Pro Ala
        50                  55                  60

Leu Phe Ser Thr Asp Asn Asp Asp Phe Thr Val Arg Asn Gly Glu Thr
65                  70                  75                  80

Val Gln Glu Arg Arg Ser Leu Lys Glu Arg Asn Pro Leu Lys Ile Phe
                85                  90                  95

Pro Ser Lys Arg Ile Leu Arg Arg His Lys Arg Asp Trp Val Val Ala
            100                 105                 110

Pro Ile Ser Val Pro Glu Asn Gly Lys Gly Pro Phe Pro Gln Arg Leu
        115                 120                 125

Asn Gln Leu Lys Ser Asn Lys Asp Arg Asp Thr Lys Ile Phe Tyr Ser
        130                 135                 140

Ile Thr Gly Pro Gly Ala Asp Ser Pro Pro Glu Gly Val Phe Ala Val
145                 150                 155                 160

Glu Lys Glu Thr Gly Trp Leu Leu Leu Asn Lys Pro Leu Asp Arg Glu
                165                 170                 175

Glu Ile Ala Lys Tyr Glu Leu Phe Gly His Ala Val Ser Glu Asn Gly
            180                 185                 190

Ala Ser Val Glu Asp Pro Met Asn Ile Ser Ile Ile Val Thr Asp Gln
        195                 200                 205

Asn Asp His Lys Pro Lys Phe Thr Gln Asp Thr Phe Arg Gly Ser Val
        210                 215                 220

Leu Glu Gly Val Leu Pro Gly Thr Ser Val Met Gln Val Thr Ala Thr
225                 230                 235                 240

Asp Glu Asp Asp Ala Ile Tyr Thr Tyr Asn Gly Val Val Ala Tyr Ser
                245                 250                 255

Ile His Ser Gln Glu Pro Lys Asp Pro His Asp Leu Met Phe Thr Ile
            260                 265                 270

His Arg Ser Thr Gly Thr Ile Ser Val Ile Ser Ser Gly Leu Asp Arg
        275                 280                 285
```

Glu Lys Val Pro Glu Tyr Thr Leu Thr Ile Gln Ala Thr Asp Met Asp
    290   295   300

Gly Asp Gly Ser Thr Thr Thr Ala Val Ala Val Val Glu Ile Leu Asp
305   310   315   320

Ala Asn Asp Asn Ala Pro Met Phe Asp Pro Gln Lys Tyr Glu Ala His
            325   330   335

Val Pro Glu Asn Ala Val Gly His Glu Val Gln Arg Leu Thr Val Thr
            340   345   350

Asp Leu Asp Ala Pro Asn Ser Pro Ala Trp Arg Ala Thr Tyr Leu Ile
        355   360   365

Met Gly Gly Asp Asp Gly Asp His Phe Thr Ile Thr Thr His Pro Glu
    370   375   380

Ser Asn Gln Gly Ile Leu Thr Thr Arg Lys Gly Leu Asp Phe Glu Ala
385   390   395   400

Lys Asn Gln His Thr Leu Tyr Val Glu Val Thr Asn Glu Ala Pro Phe
            405   410   415

Val Leu Lys Leu Pro Thr Ser Thr Ala Thr Ile Val Val His Val Glu
        420   425   430

Asp Val Asn Glu Ala Pro Val Phe Val Pro Pro Ser Lys Val Val Glu
        435   440   445

Val Gln Glu Gly Ile Pro Thr Gly Glu Pro Val Cys Val Tyr Thr Ala
    450   455   460

Glu Asp Pro Asp Lys Glu Asn Gln Lys Ile Ser Tyr Arg Ile Leu Arg
465   470   475   480

Asp Pro Ala Gly Trp Leu Ala Met Asp Pro Asp Ser Gly Gln Val Thr
            485   490   495

Ala Val Gly Thr Leu Asp Arg Glu Asp Glu Gln Phe Val Arg Asn Asn
            500   505   510

Ile Tyr Glu Val Met Val Leu Ala Met Asp Asn Gly Ser Pro Pro Thr
        515   520   525

Thr Gly Thr Gly Thr Leu Leu Leu Thr Leu Ile Asp Val Asn Asp His
    530   535   540

Gly Pro Val Pro Glu Pro Arg Gln Ile Thr Ile Cys Asn Gln Ser Pro
545   550   555   560

Val Arg His Val Leu Asn Ile Thr Asp Lys Asp Leu Ser Pro His Thr
            565   570   575

Ser Pro Phe Gln Ala Gln Leu Thr Asp Asp Ser Asp Ile Tyr Trp Thr
        580   585   590

Ala Glu Val Asn Glu Glu Gly Asp Thr Val Val Leu Ser Leu Lys Lys
        595   600   605

179

```
Phe Leu Lys Gln Asp Thr Tyr Asp Val His Leu Ser Leu Ser Asp His
    610             615             620

Gly Asn Lys Glu Gln Leu Thr Val Ile Arg Ala Thr Val Cys Asp Cys
625             630             635             640

His Gly His Val Glu Thr Cys Pro Gly Pro Trp Lys Gly Gly Phe Ile
                645             650             655

Leu Pro Val Leu Gly Ala Val Leu Ala Leu Leu Phe Leu Leu Leu Val
        660             665             670

Leu Leu Leu Leu Val Arg Lys Lys Arg Lys Ile Lys Glu Pro Leu Leu
        675             680             685

Leu Pro Glu Asp Asp Thr Arg Asp Asn Val Phe Tyr Tyr Gly Glu Glu
    690             695             700

Gly Gly Gly Glu Glu Asp Gln Asp Tyr Asp Ile Thr Gln Leu His Arg
705             710             715             720

Gly Leu Glu Ala Arg Pro Glu Val Val Leu Arg Asn Asp Val Ala Pro
            725             730             735

Thr Ile Ile Pro Thr Pro Met Tyr Arg Pro Arg Pro Ala Asn Pro Asp
            740             745             750

Glu Ile Gly Asn Phe Ile Ile Glu Asn Leu Lys Ala Ala Asn Thr Asp
            755             760             765

Pro Thr Ala Pro Pro Tyr Asp Thr Leu Leu Val Phe Asp Tyr Glu Gly
    770             775             780

Ser Gly Ser Asp Ala Ala Ser Leu Ser Ser Leu Thr Ser Ser Ala Ser
785             790             795             800

Asp Gln Asp Gln Asp Tyr Asp Tyr Leu Asn Glu Trp Gly Ser Arg Phe
            805             810             815

Lys Lys Leu Ala Asp Met Tyr Gly Gly Gly Glu Asp Asp
        820             825
```

<210> 127
<211> 1189
<212> DNA
<213> Homo sapiens

<400> 127
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tgcggccccc ggggctgggt gaggcatgca gctgcgcccc ggcgcaccct cagcagcaca 180
tctgccactc ggcacttgtg attcgggcca aaatctccag tgagaaggta gttccggcca 240
gtgcagaccc tgctgacact gaaaaaatgc tccggtatga aatcaaacag ataaagatgt 300
tcaaagggtt tgagaaagtc aaggatgttc agtatatcta tacgccttt gactcttccc 360
tctgtggtgt gaaactagaa gccaacagcc agaagcagta tctcttgact ggtcaggtcc 420
tcagtgatgg aaaagtcttc atccatctgt gcaactacat cgagccctgg gaggacctgt 480
ccttggtgca gagggaaagt ctgaatcatc actaccatct gaactgtggc tgccaaatca 540
ccacctgcta cacagtaccc tgtaccatct cggcccctaa cgagtgcctc tggacagact 600
ggctgttgga acgaaagctc tatggttacc aggctcagca ttatgtctgt atgaagcatg 660
ttgacggcac ctgcagctgg taccggggcc acctgcctct caggaaggag tttgttgaca 720
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180

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tctgccctgc cctcagcctg ttgccctgcc tcccaaaccc cattagtcta gccttgtagc 960
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atgtcataca catgagatgg tatatccttg cgatgtacag aatcagaagg tggtttgaca 1140
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<210> 128
<211> 224
<212> PRT
<213> Homo sapiens

<400> 128

Met	Pro	Gly	Ser	Pro	Arg	Pro	Ala	Pro	Ser	Trp	Val	Leu	Leu	Leu	Arg
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Leu	Leu	Ala	Leu	Leu	Arg	Pro	Pro	Gly	Leu	Gly	Glu	Ala	Cys	Ser	Cys
			20					25					30		

Ala	Pro	Ala	His	Pro	Gln	Gln	His	Ile	Cys	His	Ser	Ala	Leu	Val	Ile
		35					40					45			

Arg	Ala	Lys	Ile	Ser	Ser	Glu	Lys	Val	Val	Pro	Ala	Ser	Ala	Asp	Pro
	50					55					60				

Ala	Asp	Thr	Glu	Lys	Met	Leu	Arg	Tyr	Glu	Ile	Lys	Gln	Ile	Lys	Met
65					70					75					80

Phe	Lys	Gly	Phe	Glu	Lys	Val	Lys	Asp	Val	Gln	Tyr	Ile	Tyr	Thr	Pro
				85					90					95	

Phe	Asp	Ser	Ser	Leu	Cys	Gly	Val	Lys	Leu	Glu	Ala	Asn	Ser	Gln	Lys
			100					105					110		

Gln	Tyr	Leu	Leu	Thr	Gly	Gln	Val	Leu	Ser	Asp	Gly	Lys	Val	Phe	Ile
		115					120					125			

His	Leu	Cys	Asn	Tyr	Ile	Glu	Pro	Trp	Glu	Asp	Leu	Ser	Leu	Val	Gln
	130					135					140				

Arg	Glu	Ser	Leu	Asn	His	His	Tyr	His	Leu	Asn	Cys	Gly	Cys	Gln	Ile
145					150					155					160

Thr	Thr	Cys	Tyr	Thr	Val	Pro	Cys	Thr	Ile	Ser	Ala	Pro	Asn	Glu	Cys
			165					170					175		

Leu	Trp	Thr	Asp	Trp	Leu	Leu	Glu	Arg	Lys	Leu	Tyr	Gly	Tyr	Gln	Ala
		180					185					190			

Gln	His	Tyr	Val	Cys	Met	Lys	His	Val	Asp	Gly	Thr	Cys	Ser	Trp	Tyr
		195					200					205			

Arg	Gly	His	Leu	Pro	Leu	Arg	Lys	Glu	Phe	Val	Asp	Ile	Val	Gln	Pro
	210					215					220				

<210> 129
<211> 1909
<212> DNA
<213> Homo sapiens

<220>
<221> modified_base
<222> (1891)
<223> n = g, a, c or t

<400> 129
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attaaggagg ttaaagaagt aatttttttt aagcccaacc attaaaaatt taatacaact 1860
tggtttctcc cccttttttcc tttaaagcta ntttgtaaaa gtttatgag         1909
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<210> 130
<211> 482
<212> PRT
<213> Homo sapiens

<400> 130
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Met Pro Pro Ser Pro Leu Asp Asp Arg Val Val Val Ala Leu Ser Arg
 1               5                  10                  15

Pro Val Arg Pro Gln Asp Leu Asn Leu Cys Leu Asp Ser Ser Tyr Leu
            20                  25                  30

Gly Ser Ala Asn Pro Gly Ser Asn Ser His Pro Pro Val Ile Ala Thr
            35              40                  45
```

182

```
Thr Val Val Ser Leu Lys Ala Ala Asn Leu Thr Tyr Met Pro Ser Ser
    50              .           55              60

Ser Gly Ser Ala Arg Ser Leu Asn Cys Gly Cys Ser Ser Ala Ser Cys
 65              70              75              80

Cys Thr Val Ala Thr Tyr Asp Lys Asp Asn Gln Ala Gln Thr Gln Ala
                85              90              95

Ile Ala Ala Gly Thr Thr Thr Thr Ala Ile Gly Thr Ser Thr Thr Cys
            100             105             110

Pro Ala Asn Gln Met Val Asn Asn Asn Glu Asn Thr Gly Ser Leu Ser
        115             120             125

Pro Ser Ser Gly Val Gly Ser Pro Val Ser Gly Thr Pro Lys Gln Leu
    130             135             140

Ala Ser Ile Lys Ile Ile Tyr Pro Asn Asp Leu Ala Lys Lys Met Thr
145             150             155             160

Lys Cys Ser Lys Ser His Leu Pro Ser Gln Gly Pro Val Ile Ile Asp
            165             170             175

Cys Arg Pro Phe Met Glu Tyr Asn Lys Ser His Ile Gln Gly Ala Val
            180             185             190

His Ile Asn Cys Ala Asp Lys Ile Ser Arg Arg Arg Leu Gln Gln Gly
        195             200             205

Lys Ile Thr Val Leu Asp Leu Ile Ser Cys Arg Glu Gly Lys Asp Ser
    210             215             220

Phe Lys Arg Ile Phe Ser Lys Glu Ile Ile Val Tyr Asp Glu Asn Thr
225             230             235             240

Asn Glu Pro Ser Arg Val Met Pro Ser Gln Pro Leu His Ile Val Leu
            245             250             255

Glu Ser Leu Lys Arg Glu Gly Lys Glu Pro Leu Val Leu Lys Gly Gly
            260             265             270

Leu Ser Ser Phe Lys Gln Asn His Glu Asn Leu Cys Asp Asn Ser Leu
    275             280             285

Gln Leu Gln Glu Cys Arg Glu Val Gly Gly Gly Ala Ser Ala Ala Ser
    290             295             300

Ser Leu Leu Pro Gln Pro Ile Pro Thr Thr Pro Asp Ile Glu Asn Ala
305             310             315             320

Glu Leu Thr Pro Ile Leu Pro Phe Leu Phe Leu Gly Asn Glu Gln Asp
            325             330             335

Ala Gln Asp Leu Asp Thr Met Gln Arg Leu Asn Ile Gly Tyr Val Ile
        340             345             350

Asn Val Thr Thr His Leu Pro Leu Tyr His Tyr Glu Lys Gly Leu Phe
    355             360             365
```

183

```
Asn Tyr Lys Arg Leu Pro Ala Thr Asp Ser Asn Lys Gln Asn Leu Arg
    370                 375             380

Gln Tyr Phe Glu Glu Ala Phe Glu Phe Ile Glu Glu Ala His Gln Cys
385             390                 395                 400

Gly Lys Gly Leu Leu Ile His Cys Gln Ala Gly Val Ser Arg Ser Ala
            405                 410                 415

Thr Ile Val Ile Ala Tyr Leu Met Lys His Thr Arg Met Thr Met Thr
            420                 425                 430

Asp Ala Tyr Lys Phe Val Lys Gly Lys Arg Pro Ile Ile Ser Pro Asn
        435                 440                 445

Leu Asn Phe Met Gly Gln Leu Leu Glu Phe Glu Glu Asp Leu Asn Asn
    450                 455                 460

Gly Val Thr Pro Arg Ile Leu Thr Pro Lys Leu Met Gly Val Glu Thr
465                 470                 475                 480

Val Val
```

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<210> 131
<211> 1493
<212> DNA
<213> Homo sapiens

<400> 131
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ttggctgtga tattgtgtgc tacagttgtt caaggcttcc ccatgttcaa aagaggacgc 180
tgtctttgca taggccctgg ggtaaaagca gtgaaagtgg cagatattga gaaagcctcc 240
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aaaggacaac gatgcctaaa tcccaaatcg aagcaagcaa ggcttataat caaaaaagtt 360
gaaagaaaga attttaaaa atatcaaaac atatgaagtc ctggaaaagg gcatctgaaa 420
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gggtgaaagg accaaaaaca gaaatacagt cttcctgaat gaatgacaat cagaattcca 600
ctgcccaaag gagtccagca attaaatgga tttctaggaa aagctacctt aagaaaggct 660
ggttaccatc ggagtttaca aagtgctttc acgttcttac ttgttgtatt atacattcat 720
gcatttctag gctagagaac cttctagatt tgatgcttac aactattctg ttgtgactat 780
gagaacattt ctgtctctag aagttatctg tctgtattga tctttatgct atattactat 840
ctgtggttac agtggagaca ttgacattat tactggagtc aagcccttat aagtcaaaag 900
catctatgtg tcgtaaagca ttcctcaaac attttttcat gcaaatacac acttctttcc 960
ccaaatatca tgtagcacat caatatgtag ggaaacattc ttatgcatca tttggtttgt 1020
tttataacca attcattaaa tgtaattcat aaaatgtact atgaaaaaaa ttatacgcta 1080
tgggatactg caacagtgc acatatttca taaccaaatt agcagcaccg tcttaatttt 1140
gatgtttttc aacttttatt cattgagatg ttttgaagca attaggatat gtgtgtttac 1200
tgtacttttt gttttgatcc gtttgtataa atgatagcaa tatcttggac acatttgaaa 1260
tacaaaatgt ttttgtctac caagaaaaa tgttgaaaaa taagcaaatg tatacctagc 1320
aatcactttt acttttgta attctgtctc ttagaaaat acataatcta atcaatttct 1380
ttgttcatgc ctatatactg taaaatttag gtatactcaa gactagttta aagaatcaaa 1440
gtcatttttt tctctaataa actaccacaa cctttctttt ttaaaaaaaa aaa 1493
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<210> 132
<211> 94
<212> PRT
<213> Homo sapiens

<400> 132
Met Ser Val Lys Gly Met Ala Ile Ala Leu Ala Val Ile Leu Cys Ala
 1   5   10   15

Thr Val Val Gln Gly Phe Pro Met Phe Lys Arg Gly Arg Cys Leu Cys
                20   25   30

Ile Gly Pro Gly Val Lys Ala Val Lys Val Ala Asp Ile Glu Lys Ala
            35   40   45

Ser Ile Met Tyr Pro Ser Asn Asn Cys Asp Lys Ile Glu Val Ile Ile
        50   55   60

Thr Leu Lys Glu Asn Lys Gly Gln Arg Cys Leu Asn Pro Lys Ser Lys
 65   70   75   80

Gln Ala Arg Leu Ile Ile Lys Lys Val Glu Arg Lys Asn Phe
                85   90

<210> 133
<211> 1521
<212> DNA
<213> Homo sapiens

<400> 133
ctggcgcggg cgggagctgc ggcggatacc cttgcgtgct gtggagaccc tactctcttc 60
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cgtgcgtccc tagagtcgag cggggcaagg gagccagtgg ccgccgacgg gggaccggga 180
aactttctg ggctcctgga gagccctgta gccgcgctcc atgctccggc agcggcccga 240
aacccagccc cgccgctgac ggagcccgcc gctccgggca gggcccatgc cctgcgcgct 300
ccggggggtcg tagctgccgc cgagccgggg ctccggaagc cggcggggggc gccgcggccg 360
tgcggggcgt caatggatcg ccactccagc tacatcttca tctggctgca gctggagctc 420
tgcgccatgg ccgtgctgct caccaaaggt gaaattcgat gctactgtga tgctgcccac 480
tgtgtagcca ctggttatat gtgtaaatct gagctcagcg cctgcttctc tagacttctt 540
gatcctcaga actcaaattc cccactcacc catggctgcc tggactctct tgcaagcacg 600
acagacatct gccaagccaa acaggcccga aaccactctg gcaccaccat acccacattg 660
gaatgctgtc atgaagacat gtgcaattac agagggctgc acgatgttct ctctcctccc 720
aggggtgagg cctcaggaca aggaaacagg tatcagcatg atggtagcag aaaccttatc 780
accaaggtgc aggagctgac ttcttccaaa gagttgtggt ccgggcagc ggtcattgcc 840
gtgcccattg ctggagggct gatttttagtg ttgcttatta tgttggccct gaggatgctt 900
cgaagtgaaa ataagaggct gcaggatcag cggcaacaga tgctctcccg tttgcactac 960
agctttcacg gacaccattc caaaaagggg caggttgcaa agttagactt ggaatgcatg 1020
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ctcagcaacg ataagatcct ctcgcttgtt cactggggca tgtacagtgg gcacgggaag 1140
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ttgagttctg ctggacagga gcactttatc tgaagacaaa ctcatttaat catctttgag 1260
agacaaaatg acctctgcaa acagaatctt ggatatttct tctgaaggat tatttgcaca 1320
gacttaaata cagttaaatg tgttatttgc ttttaaaatt ataaaaagca aagagaagac 1380
tttgtacaca ctgtcaccag ggttatttgc atccaaggga gctggaattg agtacctaaa 1440
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aaatatatat attttgtctg a   1521

185

<210> 134
<211> 260
<212> PRT
<213> Homo sapiens

<400> 134
Met Asp Arg His Ser Ser Tyr Ile Phe Ile Trp Leu Gln Leu Glu Leu
  1   5   10   15

Cys Ala Met Ala Val Leu Leu Thr Lys Gly Glu Ile Arg Cys Tyr Cys
            20   25   30

Asp Ala Ala His Cys Val Ala Thr Gly Tyr Met Cys Lys Ser Glu Leu
         35   40   45

Ser Ala Cys Phe Ser Arg Leu Leu Asp Pro Gln Asn Ser Asn Ser Pro
      50   55   60

Leu Thr His Gly Cys Leu Asp Ser Leu Ala Ser Thr Thr Asp Ile Cys
 65   70   75   80

Gln Ala Lys Gln Ala Arg Asn His Ser Gly Thr Thr Ile Pro Thr Leu
            85   90   95

Glu Cys Cys His Glu Asp Met Cys Asn Tyr Arg Gly Leu His Asp Val
            100   105   110

Leu Ser Pro Pro Arg Gly Glu Ala Ser Gly Gln Gly Asn Arg Tyr Gln
         115   120   125

His Asp Gly Ser Arg Asn Leu Ile Thr Lys Val Gln Glu Leu Thr Ser
    130   135   140

Ser Lys Glu Leu Trp Phe Arg Ala Ala Val Ile Ala Val Pro Ile Ala
145   150   155   160

Gly Gly Leu Ile Leu Val Leu Leu Ile Met Leu Ala Leu Arg Met Leu
            165   170   175

Arg Ser Glu Asn Lys Arg Leu Gln Asp Gln Arg Gln Gln Met Leu Ser
            180   185   190

Arg Leu His Tyr Ser Phe His Gly His His Ser Lys Lys Gly Gln Val
         195   200   205

Ala Lys Leu Asp Leu Glu Cys Met Val Pro Val Ser Gly His Glu Asn
    210   215   220

Cys Cys Leu Thr Cys Asp Lys Met Arg Gln Ala Asp Leu Ser Asn Asp
225   230   235   240

Lys Ile Leu Ser Leu Val His Trp Gly Met Tyr Ser Gly His Gly Lys
            245   250   255

Leu Glu Phe Val
            260

<210> 135
<211> 2539
<212> DNA
<213> Homo sapiens

<400> 135
cgggacgacg ccccctcctg cggcgtggac tccgtcagtg gcccaccaag aaggaggagg 60
aatatggaat ccaagggggc cagttcctgc cgtctgctct tctgcctctt gatctccgcc 120
accgtcttca ggccaggcct tggatggtat actgtaaatt cagcatatgg agataccatt 180
atcataccct gccgacttga cgtacctcag aatctcatgt ttggcaaatg gaaatatgaa 240
aagcccgatg gctccccagt atttattgcc ttcagatcct ctacaaagaa aagtgtgcag 300
tacgacgatg taccagaata caaagacaga ttgaacctct cagaaaacta cactttgtct 360
atcagtaatg caaggatcag tgatgaaaag agatttgtgt gcatgctagt aactgaggac 420
aacgtgtttg aggcacctac aatagtcaag gtgttcaagc aaccatctaa acctgaaatt 480
gtaagcaaag cactgtttct cgaaacagag cagctaaaaa agttgggtga ctgcatttca 540
gaagacagtt atccagatgg caatatcaca tggtacagga atggaaaagt gctacatccc 600
cttgaaggag cggtggtcat aattttaaa aaggaaatgg acccagtgac tcagctctat 660
accatgactt ccaccctgga gtacaagaca accaaggctg acatacaaat gccattcacc 720
tgctcggtga catattatgg accatctggc cagaaaacaa ttcattctga acaggcagta 780
tttgatattt actatcctac agagcaggtg acaatacaag tgctgccacc aaaaaatgcc 840
atcaaagaag gggataacat cactcttaaa tgcttaggga atggcaaccc tcccccagag 900
gaatttttgt tttacttacc aggacagccc gaaggaataa gaagctcaaa tacttacaca 960
ctgatggatg tgaggcgcaa tgcaacagga gactacaagt gttccctgat agacaaaaaa 1020
agcatgattg cttcaacagc catcacagtt cactatttgg atttgtcctt aaacccaagt 1080
ggagaagtga ctagacagat tggtgatgcc ctacccgtgt catgcacaat atctgctagc 1140
aggaatgcaa ctgtggtatg gatgaaagat aacatcaggc ttcgatctag cccgtcattt 1200
tctagtcttc attatcagga tgctggaaac tatgtctgcg aaactgctct gcaggaggtt 1260
gaaggactaa agaaaagaga gtcattgact ctcattgtag aaggcaaacc tcaaataaaa 1320
atgacaaaga aaactgatcc cagtggacta tctaaaacaa taatctgcca tgtggaaggt 1380
tttccaaagc cagccattca gtggacaatt actggcagtg gaagcgtcat aaaccaaaca 1440
gaggaatctc cttatattaa tggcaggtat tatagtaaaa ttatcatttc ccctgaagag 1500
aatgttacat taacttgcac agcagaaaac caactggaga aacagtaaa ctccttgaat 1560
gtctctgcta taagtattcc agaacacgat gaggcagacg agataagtga tgaaaacaga 1620
gaaaaggtga atgaccaggc aaaactaatt gtgggaatcg ttgttggtct cctccttgct 1680
gcccttgttg ctggtgtcgt ctactggctg tacatgaaga agtcaaagac tgcatcaaaa 1740
catgtaaaca aggacctcgg taatatggaa gaaaacaaaa agttagaaga aaacaatcac 1800
aaaactgaag cctaagagag aaactgtcct agttgtccag agataaaaat catatagacc 1860
aattgaagca tgaacgtgga ttgtatttaa gacataaaca aagacattga cagcaattca 1920
tggttcaagt attaagcagt tcattctacc aagctgtcac aggttttcag agaattatct 1980
caagtaaaac aaatgaaatt taattacaaa caataagaac aagtttttggc agccatgata 2040
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tgttctggga gttgctgtta atctgatgta taatgtaatg ttttttatttc aattgtttat 2220
atggataatc tgagcaggta catttctgat tctgattgct atcagcaatg ccccaaactt 2280
tctcataagc acctaaaacc caaaggtggc agcttgtgaa gattggggac actcatattg 2340
ccctaattaa aaactgtgat ttttatcaca agggagggga ggccgagagt cagactgata 2400
gacaccatag gagccgactc tttgatatgc caccagcgaa ctctcagaaa taaatcacag 2460
atgcatatag acacacatac ataatggtac tcccaaactg acaattttac ctattctgaa 2520
aaagacataa aacagaatt   2539

<210> 136
<211> 583
<212> PRT
<213> Homo sapiens

<400> 136
Met Glu Ser Lys Gly Ala Ser Ser Cys Arg Leu Leu Phe Cys Leu Leu
 1   5   10   15

Ile Ser Ala Thr Val Phe Arg Pro Gly Leu Gly Trp Tyr Thr Val Asn
        20   25   30

Ser Ala Tyr Gly Asp Thr Ile Ile Ile Pro Cys Arg Leu Asp Val Pro
        35   40   45

Gln Asn Leu Met Phe Gly Lys Trp Lys Tyr Glu Lys Pro Asp Gly Ser
    50   55   60

Pro Val Phe Ile Ala Phe Arg Ser Ser Thr Lys Lys Ser Val Gln Tyr
65   70   75   80

Asp Asp Val Pro Glu Tyr Lys Asp Arg Leu Asn Leu Ser Glu Asn Tyr
            85   90   95

Thr Leu Ser Ile Ser Asn Ala Arg Ile Ser Asp Glu Lys Arg Phe Val
        100   105   110

Cys Met Leu Val Thr Glu Asp Asn Val Phe Glu Ala Pro Thr Ile Val
        115   120   125

Lys Val Phe Lys Gln Pro Ser Lys Pro Glu Ile Val Ser Lys Ala Leu
    130   135   140

Phe Leu Glu Thr Glu Gln Leu Lys Lys Leu Gly Asp Cys Ile Ser Glu
145   150   155   160

Asp Ser Tyr Pro Asp Gly Asn Ile Thr Trp Tyr Arg Asn Gly Lys Val
            165   170   175

Leu His Pro Leu Glu Gly Ala Val Val Ile Ile Phe Lys Lys Glu Met
        180   185   190

Asp Pro Val Thr Gln Leu Tyr Thr Met Thr Ser Thr Leu Glu Tyr Lys
        195   200   205

Thr Thr Lys Ala Asp Ile Gln Met Pro Phe Thr Cys Ser Val Thr Tyr
    210   215   220

Tyr Gly Pro Ser Gly Gln Lys Thr Ile His Ser Glu Gln Ala Val Phe
225   230   235   240

Asp Ile Tyr Tyr Pro Thr Glu Gln Val Thr Ile Gln Val Leu Pro Pro
            245   250   255

Lys Asn Ala Ile Lys Glu Gly Asp Asn Ile Thr Leu Lys Cys Leu Gly
        260   265   270

Asn Gly Asn Pro Pro Pro Glu Glu Phe Leu Phe Tyr Leu Pro Gly Gln
        275   280   285

Pro Glu Gly Ile Arg Ser Ser Asn Thr Tyr Thr Leu Met Asp Val Arg
    290   295   300

Arg Asn Ala Thr Gly Asp Tyr Lys Cys Ser Leu Ile Asp Lys Lys Ser
305   310   315   320

Met Ile Ala Ser Thr Ala Ile Thr Val His Tyr Leu Asp Leu Ser Leu
            325   330   335

188

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Asn Pro Ser Gly Glu Val Thr Arg Gln Ile Gly Asp Ala Leu Pro Val
            340               345               350

Ser Cys Thr Ile Ser Ala Ser Arg Asn Ala Thr Val Val Trp Met Lys
        355               360               365

Asp Asn Ile Arg Leu Arg Ser Ser Pro Ser Phe Ser Ser Leu His Tyr
    370               375               380

Gln Asp Ala Gly Asn Tyr Val Cys Glu Thr Ala Leu Gln Glu Val Glu
385               390               395               400

Gly Leu Lys Lys Arg Glu Ser Leu Thr Leu Ile Val Glu Gly Lys Pro
            405               410               415

Gln Ile Lys Met Thr Lys Lys Thr Asp Pro Ser Gly Leu Ser Lys Thr
            420               425               430

Ile Ile Cys His Val Glu Gly Phe Pro Lys Pro Ala Ile Gln Trp Thr
            435               440               445

Ile Thr Gly Ser Gly Ser Val Ile Asn Gln Thr Glu Glu Ser Pro Tyr
    450               455               460

Ile Asn Gly Arg Tyr Tyr Ser Lys Ile Ile Ile Ser Pro Glu Glu Asn
465               470               475               480

Val Thr Leu Thr Cys Thr Ala Glu Asn Gln Leu Glu Arg Thr Val Asn
            485               490               495

Ser Leu Asn Val Ser Ala Ile Ser Ile Pro Glu His Asp Glu Ala Asp
            500               505               510

Glu Ile Ser Asp Glu Asn Arg Glu Lys Val Asn Asp Gln Ala Lys Leu
    515               520               525

Ile Val Gly Ile Val Val Gly Leu Leu Leu Ala Ala Leu Val Ala Gly
    530               535               540

Val Val Tyr Trp Leu Tyr Met Lys Lys Ser Lys Thr Ala Ser Lys His
545               550               555               560

Val Asn Lys Asp Leu Gly Asn Met Glu Glu Asn Lys Lys Leu Glu Glu
            565               570               575

Asn Asn His Lys Thr Glu Ala
            580


<210> 137
<211> 1119
<212> DNA
<213> Homo sapiens

<400> 137
atgaaccgca gccaccggca cggggcgggc agcggctgcc tgggcactat ggaggtgaag 60
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gaggagtttt atggattact acaacatgtt cataagatcc ccaatgttga cgttttggta 180
ggctatgcag acatccatgg agacttacta cctataaata atgatgataa ttatcacaaa 240
gctgtttcaa cggccaatcc actgcttagg atatttatac aaaagaagga agaagcagac 300
tacagtgcct ttggtacaga cacgctaata aagaagaaga atgttttaac caacgtattg 360
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189

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cgtcctgaca accatagaaa aaagccacat atagtcatta gtatgcccca agactttaga 420
cctgtgtctt ctattataga cgtggatatt ctcccagaaa cgcatcgtag ggtacgtctt 480
tacaaatacg gcacggagaa accccctagga ttctacatcc gggatggctc cagtgtcagg 540
gtaacaccac atggcttaga aaaggttcca gggatcttta tatccaggct tgtcccagga 600
ggtctggctc aaagtacagg actattagct gttaatgatg aagtttaga agttaatggc 660
atagaagttt caggaagag ccttgatcaa gtaacagaca tgatgattgc aaatagccgt 720
aacctcatca taacagtgag accggcaaac cagaggaata atgttgtgag gaacagtcgg 780
acttctggca gttccggtca gtctactgat aacagccttc ttggctaccc acagcagatt 840
gaaccaagct ttgagccaga ggatgaagac agcgaagaag atgacattat cattgaagac 900
aatggagtgc cacagcagat tccaaaagct gttcctaata ctgagagcct ggagtcatta 960
acacagatag agctaagctt tgagtctgga cagaatggct ttattccctc taatgaagtg 1020
agcttagcag ccatagcaag cagctcaaac acggaatttg aaacacatgc tccagatcaa 1080
aaactcttag aagaagatgg aacaatcata acattatga 1119
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<210> 138
<211> 372
<212> PRT
<213> Homo sapiens

<400> 138

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Met Asn Arg Ser His Arg His Gly Ala Gly Ser Gly Cys Leu Gly Thr
 1               5                   10                  15

Met Glu Val Lys Ser Lys Phe Gly Ala Glu Phe Arg Arg Phe Ser Leu
                20                  25                  30

Glu Arg Ser Lys Pro Gly Lys Phe Glu Glu Phe Tyr Gly Leu Leu Gln
            35                  40                  45

His Val His Lys Ile Pro Asn Val Asp Val Leu Val Gly Tyr Ala Asp
        50                  55                  60

Ile His Gly Asp Leu Leu Pro Ile Asn Asn Asp Asp Asn Tyr His Lys
 65                  70                  75                  80

Ala Val Ser Thr Ala Asn Pro Leu Leu Arg Ile Phe Ile Gln Lys Lys
                85                  90                  95

Glu Glu Ala Asp Tyr Ser Ala Phe Gly Thr Asp Thr Leu Ile Lys Lys
                100                 105                 110

Lys Asn Val Leu Thr Asn Val Leu Arg Pro Asp Asn His Arg Lys Lys
            115                 120                 125

Pro His Ile Val Ile Ser Met Pro Gln Asp Phe Arg Pro Val Ser Ser
        130                 135                 140

Ile Ile Asp Val Asp Ile Leu Pro Glu Thr His Arg Arg Val Arg Leu
145                 150                 155                 160

Tyr Lys Tyr Gly Thr Glu Lys Pro Leu Gly Phe Tyr Ile Arg Asp Gly
                165                 170                 175

Ser Ser Val Arg Val Thr Pro His Gly Leu Glu Lys Val Pro Gly Ile
            180                 185                 190

Phe Ile Ser Arg Leu Val Pro Gly Gly Leu Ala Gln Ser Thr Gly Leu
            195                 200                 205
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:

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Leu Ala Val Asn Asp Glu Val Leu Glu Val Asn Gly Ile Glu Val Ser
    210                 215                 220

Gly Lys Ser Leu Asp Gln Val Thr Asp Met Met Ile Ala Asn Ser Arg
225                 230                 235                 240

Asn Leu Ile Ile Thr Val Arg Pro Ala Asn Gln Arg Asn Asn Val Val
            245                 250                 255

Arg Asn Ser Arg Thr Ser Gly Ser Ser Gly Gln Ser Thr Asp Asn Ser
            260                 265                 270

Leu Leu Gly Tyr Pro Gln Gln Ile Glu Pro Ser Phe Glu Pro Glu Asp
        275                 280                 285

Glu Asp Ser Glu Glu Asp Asp Ile Ile Ile Glu Asp Asn Gly Val Pro
    290                 295                 300

Gln Gln Ile Pro Lys Ala Val Pro Asn Thr Glu Ser Leu Glu Ser Leu
305                 310                 315                 320

Thr Gln Ile Glu Leu Ser Phe Glu Ser Gly Gln Asn Gly Phe Ile Pro
            325                 330                 335

Ser Asn Glu Val Ser Leu Ala Ala Ile Ala Ser Ser Ser Asn Thr Glu
            340                 345                 350

Phe Glu Thr His Ala Pro Asp Gln Lys Leu Leu Glu Glu Asp Gly Thr
            355                 360                 365

Ile Ile Thr Leu
        370


<210> 139
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:HIS6 epitope
      tag

<400> 139
His His His His His His
  1                 5


<210> 140
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:T7-T24 oligo

<220>
<221> modified_base
<222> (8)..(24)
<223> t at positions 8-24 may be present or absent
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<400> 140
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<210> 141
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:endoplasmic
      reticulum retention sequence

<400> 141
Lys Asp Glu Leu
  1
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